

Remarks by the Chair



MANY OF YOU MAY BE familiar with the long time tradition of the College in rotating department chairs every three years (although it takes over two years to

figure everything out), and you were expecting this letter to finally be coming from a new face. Well, times (deans) have changed, and such terms are now expected to last for five years, so here I am again, prepared to provide you with another year of "inspirations and revelations".

I guess the biggest news that I can share with everyone is that the administration is bound and determined to begin the construction of a new home for chemistry by the end of 2005. Last year I told you that the appropriations for the new construction were finally approved by the state, both for Rogers and Millington Halls. Unfortunately, our needs, relative to escalating cost estimates, suggested that these projects be combined into one project to minimize redundancies, a plan that seemed to make perfectly good sense. Nevertheless, there are still significant shortfalls, about 20 million of them, which could have a significant impact on our ability to sustain the chemistry program envisioned for the next generation of chemists (as well as biologists and psychologists). The administration is making every effort to narrow this monetary shortfall considerably, and hopefully we will not be faced with the kind of space crunches that I have witnessed over the past 20 years (see story on page 4). At the time of this writing I couldn't even begin to tell you where the new building will be or how it will be designed, but it would appear at this point that the vast majority of our facility will be in new quarters, a proposition that is extremely appealing relative to phased transitions that were contemplated in our original plans. In the long run, we trust that we will receive what is best for our program instead of what can simply be afforded for the time being.

Our faculty continues to provide exceptional opportunities to our students for independent research. The Class of

2004 had the highest percentage of certified ACS degrees on record (36 out of 42 or 86%), a phenomenal statistic considering that a minimum of three credits of research in the senior year is required for the certified degree. A total of 52 undergraduate chemistry majors participated in our 2004 summer research program, with over \$110,000 in stipend support provided from external grants awarded to the chemistry faculty. We were fortunate in that several students were supported by endowments provided by chemistry alumni specifically to support undergraduate research. Over \$920,000 in new monies were awarded to chemistry faculty over the past calendar year alone, with no less than 11 of our current 16 faculty being supported by major funding sources

such as NSF, NIH, NASA, Research Corp., Dreyfus, and PRF. A total of 29 peer reviewed publications were produced in 2003, with 52 undergraduates and 13 graduate citations as co-authors. I am convinced that one would be hard pressed to find another institution comparable to and in many cases much larger than William and Mary that consistently makes such an outstanding commitment to undergraduate research in chemistry.

The department continues to push forward in replacing obsolete equipment. This past year a new benchtop GC-MS was installed and additional upgrades were made in the lower division labs, a

small fraction of which was supported by alumni donations made specifically to the department. We are hoping that the third time is a charm in obtaining NSF funding for an x-ray crystallography system. Many faculty enjoy the capability of maintaining state-of-the-art instrumentation within their research labs purchased from grant support.

We just completed a successful five-year review for ACS certification, for which chemistry majors have the opportunity to be certified in chemistry, biochemistry, chemical physics, or polymer chemistry. Our curricular offerings continue to expand and change with the times (see article on page 5), to the extent that we now offer ten advanced level courses every year as well as several graduate level courses. Even with all of this diversity, enrollments in some of the more popular upper level courses can still reach 35-40 students!

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What is really scary is that I wrote the vast majority of this letter while sitting on the deck of a beach house overlooking the Atlantic Ocean, a place where I should have been clearing my mind and regenerating for the upcoming fall semester and its administrative trials and tribulations. Walking the beach for many hours continues to reinforce my fascination with the sheer beauty and power of nature. I awoke on one of those beautiful August mornings compelled to bring myself back to the reality of the mission that I am committed to guiding for at least two more years (plus, I didn't anticipate being able to plow through three Dan Brown novels in four days). Our mutual interests in the wonders of science and nature provides a bond between us that will never be broken. We've come along way since the concept of earth, wind, fire, and water.

Cheers, *Gary Rice*

The Art of Scrounging

Long ago the editor recalls his Ph.D. advisor, in response to a question concerning a needed item, saying, "Let's scrounge around a bit". Indeed, the skillful and alert search for spare or unneeded bits of apparatus which one can put to good use is sometimes necessary to bring off a research project. Nor need one restrict oneself to the merely local.

Professor J. C. Poutsma became aware of the planned disposal of several pieces of equipment from the laboratory of Professor Phillip Brooks of Rice University. These included several quadrupole filters, quadrupole controllers and vacuum chambers associated with a no-longer needed mass spectrometer. So J. C. arranged to have the equipment shipped here, and along with vacuum components from the Fisons instrument donated by Rohm and Haas in 2002, he will use these seven items to build a guided ion beam mass spectrometer similar to one he constructed in graduate school. The new instrument will have a quadrupole-octopole-quadrupole configuration and will be used to determine bond dissociation energies for a variety of ions, solvated ions and ion-bound dimer ions.

Current Faculty

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Gottwald Professor
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Dave Thompson, inorganic
Chancellor Professor
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Emeriti

Alfred Armstrong, 1976

Ed Katz, 1980

Cirila Djordjevic, 1992

Trevor Hill, 1992

Dick Kiefer, 2003
rlkief@wm.edu

Promotions

Bob Pike (Professor)

On leave for 2004–2005

Dave Kranbuehl (Spring 2005)

Part-time faculty, 2004–2005

Homer Smith (Fall 2004)



Linda Savedge is our new Secretary Sr./Fiscal Technician

We have a new staff member!

After Tanya Peyton followed her husband to his new station at Fort Bragg last spring, Ted Putnam and Bill Starnes were left for several months without much-needed assistance. We are so fortunate that Linda Savedge was looking for a full-time position at the College, and that she took over the job in August.

Linda grew up in York County, and she and her husband Lewis now make their home in Barahamsville. The Savedges have two sons, both of whom are firefighters for the National Park Service. One is stationed at Luray, VA, and the other is headquartered in Mississippi.

Faculty News

Bill Starnes' Patent Promises Better Plastic Along with Safer World

What excites Floyd Dewey Gottwald, Sr. Professor of Chemistry William Starnes most about his recently patented organic stabilizers for PVC isn't the tremendous monetary potential the invention could bring him, the College and his department. It's the idea that his contribution to the growing \$1.8-billion heat stabilizers industry could help save lives.

One of the most widely used plastics in the world, PVC, or poly(vinyl chloride), has been attacked for its potentially adverse environmental effects. When heated, PVC tends to degrade. To prevent this degradation, heat stabilizers are added to the polymer. Until now, the problem has been that the best, most effective stabilizers contain heavy metals which are often toxic and environmentally unfriendly. While the PVC industry is cautious about how and where these kinds of stabilizers are used, environmental groups aren't satisfied. But Starnes and his research team have discovered a solution that benefits both sides of the debate.

They're called ester thiols, and they're non-toxic, unique organic materials that work as stabilizers for PVC. And they work just as well as the toxic metal ones often used now. But their value doesn't stop there. PVC can be either rigid or flexible. To make it flexible, low molecular weight compounds called plasticizers must be added. The ester thiols Starnes has discovered are so compatible with the polymer that when used at high levels, they also serve as plasticizers—non-toxic plasticizers.

"If people throughout the world can use PVC without some of the concerns now associated with it, then literally, we're talking about saving lives, particularly in countries with less-strictly enforced environmental laws," said Starnes.

Found in vinyl siding, plastic flooring, shower curtains, plastic blinds, credit cards and numerous other products, PVC shows up in nearly every area of normal daily life. Starnes' invention can make each and every PVC application safer without sacrificing stability, and that's what's attracting the attention of major chemical companies worldwide.

Earlier this year, the Hampton Roads Technology Council gave Starnes its annual Excellence in Innovation award for his first issued patent for ester thiols. Two other U.S. patents have issued recently, and several other U.S. and foreign patents are pending.



Starnes is now working through William and Mary's Technology Transfer Program in cooperation with Edison Polymer Innovation Corporation (EPIC) in Ohio—the same company he worked with to develop the technology—to license it. Negotiations with several companies are under way, and if the College is successful in finalizing a licensing agreement that leads to commercialization, Starnes and the College will receive a major portion of product royalties.

"There's been considerable industrial interest in these compounds as stabilizers and as plasticizers, so there is a lot of potential," Starnes said. "We're guardedly optimistic. There's absolutely no question that this technology works, so if it's not commercialized, it will be for purely economic reasons."

Getting an invention patented is no small or quick task. It usually takes years—more than three in Starnes' case—just to get a patent approved. But in the long run, the wait is worth it. Through EPIC, Starnes has filed patents internationally. Since his research in heat stabilizers and ester thiols continues to produce new advancements, Starnes already has five additional patents enduring the approval process. Two have received notices of allowance.

Throughout his research, Starnes has been assisted by three postdoctoral fellows, Bin Du, Soungkyoo Kim and Vadim Zaikov, and one recent William and Mary Ph.D. graduate in applied science, Xianlong Ge. Du's and Kim's names will appear on patents. Currently, senior Elizabeth Culyba is researching the mechanism of action for ester thiols. According to Starnes, her research has produced some extraordinary results already.

Departmental News

Chemistry Adds New Courses

Our desire to maintain diverse offerings as well as providing interested majors with subjects that have become integral components of chemistry in recent years has prompted the development of several interesting courses and labs that are annually available to our majors and the College community.

Professor Bebout offered the Chemistry Department's first **Freshman Seminar** in Fall 2002. The course, entitled "Drugs and Society" attracted students anticipating majoring in the sciences or business. Class discussion focused on the manifold impacts of drugs on our society, including their wide spread use to improve health, alter reproduction, extend lifetimes, and alter moods. Ideas from disciplines as diverse as biochemistry, economics, sociology, history and medical ethics were used to better understand the development, physiological impact, and legislation of drugs. The representation of drugs in film, television and advertisements was also covered. Since

this course satisfied the Freshman Writing Requirement, students had to write 24 pages of material over the course of the semester. Assigned paper topics included reflections on a personal drug decision, summaries of two drug discovery exercises, analysis of a drug advertisement, a letter to a government official requesting new drug-related legislation and a business proposal to fund development of a new drug. A modified version of the course was offered this past summer to rising high school seniors as part of the William and Mary Chancellors Academy program for enhancing recruitment of talented science majors. Reflecting back on her first experience with the course, Professor Bebout renamed it “Drugs: Panacea or Scourge?” this year. While students may not have an answer to this question at the end of the semester, they are sure to be more knowledgeable drug consumers.

Computational Chemistry, a senior-level chemistry elective class taught for the first time this past spring by J. C. Poutsma, covers a wide variety of theoretical techniques currently in use to determine molecular structure. Students use PCModel, a windows based molecular mechanics program, in the first third of the course to investigate the use of molecular force fields in organic and biological chemistry. Topics include force field parameterization, conformational analysis using the GMMX subroutine, molecular dynamics simulations and Monte Carlo simulations. The rest of the course is devoted to quantum mechanics calculations using the Gaussian98 suite of programs. Methods covered include semi-empirical calculations, Hartree-Fock theory, perturbation theory, configuration interaction calculations, and density functional theory. Topics include periodic trends in thermochemical properties such as bond energies, heats of formation, and proton affinities, transition state location, and spectroscopy. Students learn the background theory behind each new technique and then complete problem sets illustrating real-world application of the techniques. In addition to covering the theoretical basis of each technique, class time is spent discussing relevant examples from the current literature.

Neurochemistry was introduced for the first time this fall (2004) as a response to the interest Randy Coleman has in the field of neurochemistry, as a true elective for chemistry majors, and as a course that would appeal to the growing population of neuroscience interdisciplinary majors on campus. The class is designed around the study of the biochemical mechanisms and pharmacology of the nervous system, with particular emphasis on the human brain. With a course in biochemistry as a prerequisite, the students are mostly seniors or first-year graduate students. Lecture topics include the role and metabolism of excitatory and inhibitory neurotransmitters, the molecular structure and function of neurotransmitter receptors, reuptake transporters, and second messenger systems. The biochemical

basis of neuroactive drugs, toxins, and diseases are discussed, and lectures on emotion, learning and memory, and topics of special interest to the students are included. Students with diverse backgrounds in chemistry and neuroscience are expected to make contributions based on their background knowledge. That idea seems to be working nicely so far, with the neuroscience majors bringing interesting points to the discussions.

A new course called **Organic Synthesis** was developed in 1998 by Rob Hinkle. After postdoctoral training with Professor Larry Overman at UC Irvine, it was clear to Rob that William and Mary students intending to enter Ph.D. programs in organic chemistry would be at a disadvantage without a modern synthetic course. The class utilizes the recent literature to showcase classical organic reactions as well as their asymmetric variants toward moderately complex natural products. Students learn about chiral organic and organometallic catalysts, olefin metathesis reactions and how to control relative stereochemistry through a variety of methods. Although first designed at the graduate level, the course is now offered as an undergraduate elective that fulfills advanced chemistry course graduation requirements, and in recent years it has attracted more undergraduate students with a strong interest in organic chemistry. Returning alumni have mentioned on several occasions that the course proved to be a valuable experience in terms of preparation for the rigors of graduate school.

A new sophomore level laboratory was developed by Bob Pike and Gary Rice for the spring semester several years ago entitled **Quantitative and Inorganic Laboratory Methods**. This lab is intended for rising chemistry majors, to better acclimate them to the “realities” of junior level labs, namely to maintain lab notebooks and provide formal lab reports of the same type and rigor expected in the junior level labs. The experiments are split equally between quantitative analysis labs (titrations, electrochemistry, spectroscopy, etc.) and inorganic synthesis and product characterization. Student enrollments and evaluations of the course have been very positive, as it provides these students with a more independent experience than what can be provided in the traditional lower division lab format.

Chemists Rule!

Faculty Assembly

The Faculty Assembly, the overall governing body of the faculty, now has three representatives from the Chemistry Department: Chris Abelt, Debbie Bebout and Bob Orwoll. The Assembly is composed of 20 members, 8 from the four schools and 12 from Arts and Sciences. The 12 Arts and Science representatives have 4 from each of the three areas. So, three of the four Area III representatives are chemists. But

the power doesn't stop there. Debbie is chair of the subcommittee on Faculty Affairs, Chris and Bob are members of the Executive Committee, and Chris is the chair of the Executive Committee and President of the Faculty Assembly for 2004-2005. Chris's term of office began earlier than expected with calls from the Rector about the search for the 26th President of the College. He is looking forward to a very busy year and becoming the immediate past president next year.

Chemistry Is Well-represented on New Advisory Board

The College has assembled an Advisory Board for Graduate Studies in Arts and Sciences to guide the overall planning and development of these programs. In particular, the Board is charged with:

- ✓ enhancing graduate aid funding from individuals, corporations, foundations and government to provide competitive stipends required for attracting the best students;

New Rogers Recollections

Although many alumni pre-date Rogers Hall off of Barksdale Field (which will soon become a thing of the past as well), the majority of our graduates have indeed been part of the current Rogers; a building that has promoted conscientious teaching and independent research for the past thirty years. The evolution of the College to encourage and foster research has led to somewhat of a metamorphosis in Rogers over the years, to the extent that many would be amazed at not only how chemistry has sustained itself over the years through the eventual annexation of the entire building, but how every square inch of conceivable space has been transformed into research space.

When I arrived in 1984, Chemistry shared Rogers Hall with the Department of Religion (and in previous years with Philosophy and the EOAA office). The main lecture hall had just been added several years prior to that time. Each faculty research space was pretty much limited to ~300–350 sq. ft. and at best contained two fume hoods. Several factors over the years led to significant changes in priorities for Rogers Hall, including increases in the number of faculty, the affiliation of several chemistry faculty with the applied science graduate program, significant increases in the number of chemistry majors (an average of 44 annually over the past 20 years) as well as students served in other disciplines, and the incredible increases in the summer research program (from an average of 12–15 students in the early eighties to over 50 annually in the past several years). Faculty successes in acquiring external support for their research interests have increased by at least three fold in that time period as well.

When Rogers Hall was initially planned, no one would have guessed that we would now find ourselves in a position where sustainability is questionable, a forbidding thought considering the quandary we are facing with a new building that may be quickly outdated given the cost constraints. Our success over the past 30 years in Rogers is somewhat the result of very creative solutions. A seminar room on the second floor, a lecture room on the first floor, and part of the stockroom were converted to hood intensive research labs. Space previously occupied by other departments was converted to additional faculty offices and research space. The balance room in the

- ✓ providing advice and input on graduate programs and assistance in finding jobs and internships for students;
- ✓ functioning as ambassadors by helping us tell the story about our research and graduate programs;
- ✓ providing advice and input on potential expansion of graduate studies through existing programs or possible new programs.

Among the 19 members of the Board are five Chemistry alumni:

Patricia Pound Barry ('63), Executive Director, Merck Institute of Aging and Health

Vincent DeVita ('57), Researcher, Yale Medical School

Christopher Kontos ('84, M.A. '87), Ass't Professor, Duke University Medical Center

Nikola Nicolic ('86, M.A. '87), Senior Project Supervisor, National Starch and Chemical Co.

Jean Takeuchi (M.A. '76), Research Scientist, Eli Lilly & Co.





instrumental analysis lab now houses the GC-MS, and several other small areas have been converted to specialty research needs. On top of all of this, we also occupy ~2000 sq. ft. of research space in McGlothlin-Street Hall for faculty associated with Applied Science. Most of the double labs on the second floor of Rogers are now single faculty labs.

Nevertheless, these enhancements have not occurred at a rate to meet the needs of the department. The ability of some faculty to have the desired number of students in their labs is hindered by tight quarters and safety concerns. The fume hood capacity of the building (at least when they are all working) is completely inadequate for the level of research in the department (on some days inhaling in certain parts of the building is an unusual adventure in olfactory experiences). The lower division labs have undergone the strains of increasing enrollments over the years and are now occupied an average of 25–30 hours per week during the academic year, requiring constant repairs of plumbing and other assorted dilemmas. We find it extremely difficult at this point in time to flourish much longer in an environment that we all consider embarrassing when providing tours to prospective students.



I would venture a guess that our expanding needs over the past twenty years alone have resulted in millions of dollars in renovations and maintenance, although there is no way for me to substantiate this claim. Our goal for the new facility was a vision for the future from lessons learned over the past 30 years; a department where productive student research would be the norm rather than the exception; teaching labs that produced an “atmosphere” commensurate with the exceptional students gracing these labs every day; a facility that would sustain our faculty and student needs through the next generation. I truly believe that we met that challenge in our plan for the new facility, only to now find that even the best made plans must go through hurdles that we appear to have no control over. Let us ultimately hope that history is not repeated in the next Rogers Hall.

Faculty Research Profiles

Steve Knudson

Our group continues the Old Quantum Theory for Diatomic Molecules project (with Ed Kwee, Brian Hopkinson, Brad Marts, Anna Durden, Chip Crawford). This project has led to the unveiling of classical trajectories which correspond to the path of bound electrons in the spirit of the Old Quantum Theory. The accuracy is better than might have been expected, and points out the importance of electron tunneling to chemical bonding. Work continues on associated wave functions and properties. Several other projects, including the determination of dipole moments of isotopomers (of astrophysical interest) with gaussian wave functions and the use of maps to study dynamic properties of chaotic systems, have moved along to the point where student involvement becomes both possible and important.



Selected Recent Publications

K. A. Mitchell, J. P. Handley*, B. Tighe*, J. B. Delos, and S. K. Knudson, “Geometry and topology of escape. I. Epistrophes”, *Chaos* **13**, 880–891 (2003).

K. A. Mitchell, J. P. Handley*, B. Tighe*, J. B. Delos, and S. K. Knudson, “Geometry and topology of escape. II. Homotopic Lobe Dynamics”, *Chaos* **13**, 892–902 (2003).

B. M. Hopkinson*, E. D. Kwee*, and S. K. Knudson, "A connection between quantum critical points and classical separabilities of electronic states", *J. Chem. Phys.* **117**, 5660–5669 (2002).

S. K. Knudson, "Bound Primitive Semiclassical Diatomic Electronic States", *Chem. Phys.* **283**, 389–399 (2002).

S. K. Knudson and W. H. Starnes, Jr., "Computational Simulation of Poly(vinyl chloride) Reduction with Tri-n-butyltin Hydride. The Use of Revised Rate Constants.", *J. of Vinyl & Additive Technology.* **7**, 196–202 (2001).

Emily Jane Buehler*, Erin E. Gooch*, Jennifer L. Dial*, and Stephen K. Knudson, "Semiclassical Energies of Low-lying States of One-electron Diatomics", *Chemical Physics* **253**, 219–230 (2000).



Bob Orwoll

Our group is synthesizing and characterizing novel polymers that have potential applications in shielding against the energetic (1000s of MeVs) nuclei that make up the most dangerous components of galactic cosmic radiation (GCR). This hazard must be overcome before the United States can achieve its goal of establishing a manned station on the moon and sending astronauts to Mars.

Gram for gram, hydrogen is the most effective element for offering protection from GCR. While surrounding a lunar habitat or a spaceship to Mars with liquid hydrogen could result in effective shielding, it is not a very practical solution. Shields of hydrogen-rich aliphatic polymers, such as polyethylene or polypropylene would make more sense. However, in the interests of saving weight, it is desirable that radiation shields serve additional functions such as in structures, insulation, plumbing, thermal conductors, micrometeorite shields, or space suits. Aliphatic polymers are not as good for these ancillary functions as aromatic polymers (*e.g.*, Kapton, a polyimide often used in space), which tend to be hydrogen deficient.

So our goal has been to develop multi-use polymers which have high hydrogen content for shielding and—at the same time—aromatic backbone units for high-strength with thermal and chemical stability. Accordingly, the group has synthesized a series of aromatic polyimides and polyethers with methyl groups attached. All polymers prepared have softening temperatures well above the upper use temperature of polyethylene. At this time, mechanical testing is underway, and samples are being subjected to radiation testing by bombardment with high velocity iron nuclei at the Brookhaven accelerator.

Selected Recent Publications

L. Y. Hu, S. Yang, C. S. Park, R. A. Orwoll and B. J. Jensen "Synthesis of Polyimide Materials for Radiation Shielding, *Polymer Preprints*, **2004**, 45 673-674.

Y. Hu, and R. A. Orwoll, "Binding Studies on Resins Imprinted with (S)-Naproxen," *Materials Research Society Symposium Proceedings*, **2002**, 723, 105-11.

D. M. Delozier, R. A. Orwoll, J. F. Cahoon, N. J. Johnston, J. G. Smith, Jr., J. W. Connell, "Preparation and Characterization of Polyimide/Organoclay Nanocomposites," *Polymer*, **2002**, 43, 813-822.



Bob Pike

Our group is interested in chemistry that lies at the border of transition metal chemistry, polymer chemistry, and materials research. Currently, we are synthesizing new metal-organic network materials, which can take the form of one-dimensional chains, two-dimensional sheets, or three-dimensional lattices. Our particular interest in such materials has to do with their potential as convenient and safe catalysts for organic reactions. Our research in the area of copper-based network materials has led to a paper (#6 below) that was among the 40 most-cited in the journal *Inorganic Chemistry* (1999-2003), and new undergraduate laboratory experiment on metal-organic self-assem-

bly (paper #5 below). We are also working in collaboration with Prof. Starnes and his students to develop new copper-based fire-retardant and smoke-suppressant additives for poly(vinyl chloride) (PVC). These additives function by a new, potentially more effective, mechanism and could represent a significant technological advancement.

Selected Recent Publications

R. D. Pike; B. A. Reinecke (B.S. '04); M. E. Dellinger (B.S. '05); A. B. Wiles (B.S. '06); J. D. Harper (B.S. '03); J. R. Cole ('02); K. A. Dendramis (B.S. '03); B. D. Borne (B.S. '02); J. L. Harris; W. T. Pennington, "Bicyclic Phosphite Esters from Pentaerythritol and Dipentaerythritol: New Bridging Ligands in Organometallic and Inorganic Chemistry," *Organometallics* **2004**, *23*, 1986-1990.

R. D. Pike, "Inorganic Additives for Polymers," guest editorial, *Journal of Vinyl and Additive Technology* **2004**, *10*, 1-2.

W. H. Starnes, Jr.; R. D. Pike; J. R. Cole (B.S. '02); A. S. Doyal (B.S.'02); E. J. Kimlin; J. T. Lee (B.S. '02); P. J. Murray (B.S. '02); R. A. Quinlan (B.S. '03); J. Zhang (M.S. '03), "Cone Calorimetric Study of Copper-promoted Smoke Suppression and Fire Retardance of Poly(vinyl chloride)," *Polymer Degradation and Stability* **2003**, *82*, 15-24.

J. T. Maeyer (B.S. '99, M.S. '01); T. J. Johnson (B.S. '01); A. K. Smith (B.S. '03); B. D. Borne (B.S. '02); R. D. Pike; W. T. Pennington; M. Krawiec; A. L. Rheingold; "Pyrimidine, Pyridazine, Quinazoline, Phthalazine, and Triazine Coordination Polymers of Copper(I) Halides," *Polyhedron* **2003**, *22*, 419-431.

R. D. Pike; P. M. Graham (B.S. '00); K. A. Guy (B.S. '01); T. J. Johnson (B.S. '01); J. R. Cole (B.S. '02); S. M. Stamps (B.S. '04); L. E. Klemmer (B.S. '04), "Network Complexes of Copper(I) Halides," *Journal of Chemical Education* **2001**, *78*, 1522-1524.

P. M. Graham (B.S. '00); R. D. Pike; M. Sabat; R. D. Bailey; W. T. Pennington, "Coordination Polymers of Copper(I) Halides," *Inorganic Chemistry* **2000**, *39*, 5121-5132.

Dave Thompson

There is intense interest in the synthesis of hybrid materials where an inorganic phase exists as nanometer-size (50 – 2000 Å) particles uniformly dispersed throughout an organic polymer matrix. Synthetic areas include: 1) biomimetic mineralization of polymers, 2) silica, silicate, and other metal oxide-polymer hybrid materials, and 3) inclusion of metal clusters in polymeric matrices. Within the latter area, nanometer-size metal particles (e.g., silver, palladium, copper, gold, etc.) constrained by polymeric matrices, we have been actively and successfully pursuing the synthesis of silver metallized polyimide films by a novel self-metallization technique in which the polymeric film and metallized surface are formed simultaneously. The resultant metallized films exhibit high specular reflectivity (you can shave or put on makeup with them) and electrical conductivity which are essentially those of the native silver. There are interesting applications for silvered and other surface metallized polymeric films including silver-impregnated tubing to deter catheter-induced urethritis and the production of large flexible, lightweight mirrors for the terrestrial concentration of solar energy to process heat and generate electric power, the construction of lightweight optical mirrors and sunshields for space devices such as the Next Generation Space Telescope; the construction of large scale inflatable antennas for the management of EM signals in space. Polymeric support of reflective thin film metallic surfaces offers substantial advantages in weight and flexibility relative to traditional supports such as glass, ceramics, and metals. Several William and Mary students have been involved in this work as indicated by the listed publications. (Students names are underlined.)



Selected Recent Publications

“Metal-Polyimide Nanocomposite Films: Single-Stage Synthesis of Silvered Polyimide Films Prepared from Silver(I) Complexes and BPDA/4,4'-ODA,” R. E. Southward and D. W. Thompson, *Chem. Mater.*, **2004**, *16*, 1277-1284.

“Synthesis of Hexafluoroisopropylidene-Containing Polyimide-Silver Nanocomposite Films Evolving Specularly Reflective Metal Surfaces,” Julia D. Warner, Miriam Pevzner, C. J. Dean, D. E. Kranbuehl, J. L. Scott, S. T. Broadwater, D. W. Thompson,* and Robin E. Southward, *J. Mater. Chem.*, **2003**, *13*, 1847-1852.

“Silver-Polyimide Nanocomposite Films Yielding Highly Reflective Surfaces,” R. E. Southward, C. J. Dean, J. L. Scott, S. T. Broadwater, and D. W. Thompson, *Mat. Res.Soc. Symp. Proc.*, **703**, 421-426 (**2002**).

“Oxo-metal-polyimide nanocomposites: Part II. Enhancement of thermal, mechanical, and chemical properties in soluble hexafluoroisopropylidene-based polyimides via the *in situ* formation of oxo-lanthanid(III)-polyimide nanocomposites,” Thompson, D. S.; Thompson, D. W.; Southward, R. E. *Chem. Mater.*, **14**, 30-37 (**2002**).

News about Students

2003 Verizon Undergraduate Science Research Symposium

September 2003 marked the Tenth Annual William and Mary Undergraduate Symposium, where students present the results of their summer research at the Research Poster Session or in fifteen-minute Research Presentations. Thirty-five Chemistry student researchers participated in this year's event.



Seniors Sarah Stamps and Somang Kim and junior Jen Dertinger (back to camera) discuss their posters with Bob Orwoll.



From left: Seniors Jane Alston and Kelly Kennett; Rob Hinkle

Chemistry's Newest Beckman Scholar



Melissa Sprachman, a junior from Massachusetts, was recently awarded a Beckman Scholarship from the Arnold and Mabel Beckman Foundation. This prestigious award provides summer and academic year stipends as well as two expense-paid trips to the annual Beckman Scholars' Symposium in Irvine, California.

Melissa is studying the efficacy of non-toxic bismuth(III) compounds as catalysts or precatalysts in the synthesis of cyclic ether compounds often found in natural products. She is working in Professor Hinkle's lab and has been performing research since the beginning of her sophomore year.



Chris Abelt listens as sophomore Steven Lewis talks about his research with Mirth Hoyt, a senior.

News of Our Alums

We were delighted to hear from so many of you in the past year, and encourage more of you to keep us up to date with what is going on in your lives. Information about how to contact the Department is on the back page of this newsletter (or contact your favorite professor, who can forward the message).

Eugene Aquino ('88, M.S. '91, Ph.D. University of Akron) works for the American Research Group in Radford, VA.

Charles Barclay ('39), who practiced medicine for more than 50 years, lives in Portsmouth, VA, where he and his wife Norma are active in the community.

Patty Pound Berry ('63) is executive director of Merck Institute of Aging and Health, supporting programs that improve community care of older adults.

Caryn (Carson)Berg-Breen ('94), now a law student at Loyola U. in Chicago, continues to work part-time as a technical advisor for Leydig, Voit & Mayer in Chicago. She and her husband Jon have not yet taken on the responsibility of a child or even a dog; but, maybe soon, she reports!

Wayne Brubaker ('93, Ph.D. Indiana) is a Research Chemist at Dupont's Central Research and Development facility in Wilmington, DE.

Scott Bunge ('97), after getting his Ph.D. at Georgia Tech and doing a post doc at Sandia Nat'l Labs, has accepted a tenure track position in inorganic chemistry at Kent State University. Scott's research group will focus on developing late transition metal coordination compounds for use in controlled nanocrystal synthesis and assembly.

James Cahoon ('03), in graduate school at UC Berkeley, has been awarded an NSF graduate research fellowship.

Dale Cohen ('63) is an independent information specialist who conducts online literature searches for several large corporations since giving up chemistry at the "bench" about 20 years ago. He enjoys the breadth of his work, which may range from prior art patent searching, to toxicity information, to market research and competitive intelligence, all in one day.

In October 2003, **Jim Comey** ('82) was nominated by President Bush to serve as Deputy Attorney General of the United States, and unanimously confirmed by the Senate in December. Jim served as U. S. Attorney for the Southern District of New York from January 2002 until his confirmation. Yes, this is the same Jim Comey much in the news and on TV in connection with anti-terrorist and other high profile criminal prosecutions!

Don Comiter ('56) is still practicing urology in Florida, but finds time for his computer, photography, and, especially, visits from seven grandchildren who live in the vicinity.

In February, **Vincent DeVita, Jr.** ('57) was appointed the Amy and Joseph Perella Professor of Medicine by the Yale Corp. He is a professor of internal medicine, epidemiology and public health at the Yale School of Medicine. While director of the National Cancer Institute, Dr. DeVita was instrumental in developing the combination chemotherapy programs that led to successful curative chemotherapy for Hodgkin's disease and diffuse large cell lymphomas.

Elizabeth Doyle ('02) is a Research Associate in a biochem lab at UNC-Chapel Hill, where her husband **Alex** ('02) is in med school. The Doyles have a 2½ year old son, Patrick.

Karen (Laslo) Franklin ('92, Ph.D Scripps '97) is working at Array BioPharma in Boulder, Colorado, as an information specialist, where she says she gets to do a lot of searching and thinking about chemistry without *doing* any chemistry! Karen and her husband Jim ('88) have a 21/2 year old son, Kyle. She reports that she works with two other W&M Chemistry alums—**Susan Larson** ('00) and **Joe Lyssikatos** ('87).

Geordie (Paulus) Grant ('68) is an anesthesiologist at the New Jersey Medical School in Newark. During her visit last fall, she told us that she hoped her son Rob, a high school senior, would consider William and Mary, too.

Nicole (Haralampus) Grynawiski ('97) and her husband Jeff live in Chicago, where he is a professor of political science at the U. of Chicago, and Nicole is working on her postdoc in chemistry at a lab just outside the city.

Cathy Jones Gunderson ('81), her husband, and two teenage daughters live in Poulsbo, Washington, a ferryboat ride across Puget Sound from Seattle, with a backyard view of the Olympic Mountains. Cathy is a dietitian for the local Senior nutrition Program.

Ron Hann ('86, M.A. '87) is a team chief and mission commander assigned to the Defense Threat Reduction Agency at Fort Belvoir, and was awarded the Joint Service Achievement Medal last fall. Ron and his wife Marsha make their home in northern VA.

Jay Hen, Jr. ('71), is Director of the Pediatric Intensive Care Unit and Chief of Pediatric Pulmonology at Bridgeport Hospital, a part of the Yale New Haven Health Care System in Bridgeport, CT. After reading his Fall 2003 newsletter, Jay wrote, "I agree with Bob Pike...Chemistry was cool when I was at W&M. Dr Guy made it really cool for us Freshmen. Dr Hill made coming to classes fun. Rogers Hall smelled all the time. I am sure it is even cooler now with the faculty and students that I read about last night. The rigors, science, numbers, exactness, precision, and logic of chemistry prepared me well for medical school. My love of the rigors, science, numbers, exactness, precision, and logic attracted me to Pediatric Critical Care Medicine."

Cathy Higgins ('99) completed her Ph.D at Tulane, specializing in protein folding, and has begun a postdoc in the atherosclerosis and vascular biology training program at Baylor College of Medicine in Houston, TX.

Brian Hogg ('93, Ph.D. Ohio State) is a Senior Chemist at ExxonMobil's Analytical Sciences Laboratory in Paulsboro, NJ.

David Hood ('90, M.S. '92, Ph.D. Applied Science '96) works for International Specialty Products in New Jersey. This November he and several co-workers will receive the Thomas Alva Edison Patent Award for their invention of a 2-phase aqueous polymeric composition of polyvinyl pyrrolidone (PVP) which forms a clear to translucent film upon application to a substrate. David and his wife Christy live in Basking Ridge, NJ, and have two children, Sabrina, 7, and Davis, 6 months.

Brian Hubbard ('94, Ph.D. in chemistry and biochemistry, Illinois) is Lab Head of Enzymology and of Automation and Metabolic Profiling at Novartis Institutes for Biomedical Research in Cambridge, MA.

Geoff Klein ('00), wrote us last November from Florida State, in his fourth year in the analytical chemistry Ph.D. program. He works with Alan Marshall on the determination of compounds in crude oils using FT-ICR MS (petroleomics). Geoff says he has been lucky to be able to do both chemistry and music since he's been down there, and has been keeping busy performing in local venues.

Robert Kravitz ('82) is owner and president of an environmental and engineering consulting group with three offices in Missouri. Rob and his wife live in Columbia and are the parents of three teenage girls.

Muriel Liberto ('91) is now embarking on a career in patent law, working at a Manhattan law firm while earning her J.D. by night at Fordham.

Jonathan Lokey ('89, MCV '93) is a clinical professor of surgery in Greenville, SC, where he is also the Assistant Program Director for the general surgery residency. Jonathan says that as a surgeon, he does not often find ways to vigorously incorporate his chemistry training, but as an educator, he relies heavily on his excellent role models here.

Jonathan Maeyer ('99, MA '01) has enrolled in a chemistry Ph.D. program at the U. of Arizona, after working for several years at Emisphere Co. in Tarrytown, NY.

John Maksymonko ('99) enters law school at Washington U. in St. Louis this fall.

One of the invited speakers at our Spring Seminar Series this year was **Anne McNeil** ('99), who is finishing her Ph.D. at Cornell and will be joining Tim Swager's group at MIT as a postdoc this fall.

Jeffrey Nickel ('65, Ph.D. '70 Rutgers) was recently appointed Vice President of Business Development and Marketing for BioTime, Inc. in Berkeley, CA, where he has served on the Board of Directors since 1997. Prior to starting his own consulting business, Nickel & Associates, in 1991, he spent three years in marketing at Syntex Corp. and 15 years in research, sales and marketing for Merck & Co.

Dave Olmeijer ('93, Ph.D. Penn State) is a Staff Scientist at PolyFuel in Menlo Park, NJ, involved in the development and manufacturing of low cost, low crossover alternative membranes and MEAs for use in direct methanol fuel cells for

portable power applications. Dave is author of several papers and holds 3 patents or patent applications in the field of lithium polymer electrolytes and fuel cell membranes.

Richard Paolillo ('61) and his wife Lynn ('64) live in Florida. Their daughter Cynthia is also a graduate ('85) of W&M, and their youngest son Matthew expects to graduate in the class of 2007.

Lara Pawlow ('03) and **Ron Quinlan** ('03) were married in the Sunken Garden this past June, and now live in Richmond. Laura enters med school at MCV this fall, and Ron has been accepted in the Applied Science Ph.D. program here at W&M.

Rick Platt ('72), a Williamsburg resident and active runner, is running journalist/editor and proprietor of Run Fast Promotions.

Pat Raymond ('82) graduated from MCV in 1986 and joined a successful gastroenterology practice in Virginia Beach in 1992. She now practices medicine part-time, pursuing a speaking and writing career. She is a frequent guest host on the award winning program "HearSay", broadcast live daily on 89.5 FM, has published her first book "Don't Jettison Medicine", and is President of Rx For Sanity (www.RxForSanity.com). She speaks to doctors and nurses about resuscitating their passion for their medical careers. "How far we've all come from Dr. DeFotis' first year teaching P-Chem, and organic's Mel Schiavelli acting out hydrogen excitement!", she says. Pat, who is an Associate Professor of Clinical Internal Medicine at EVMS, was recognized in March with the 2004 YMCA Women of Distinction Award for Medicine.

Mike Repucci ('98) is studying medicine at Cornell's Weill Medical College.

Stephanie (Monn) Rogers ('92, Ph.D. CalTech, theoretical chemical physics) now lives in Hawaii with her husband Stephen and their two daughters, Hunter, who is 10, and Kaitlyn, 8. She and Stephen were both working for Applied Physics Laboratory in Laurel, MD, when he was sent to Hawaii nearly two years ago to set up a field office, and Stephanie decided to take time off to join him. She is enjoying Hawaii, and keeping busy—she is a Girl Scout leader (of two troops), active in her church, and is PTSA president this year.

David Ross ('66), a Chincoteague native, taught chemistry, physics and math for 13 years in Pocomoke City, MD, and worked for NASA on ozone research. Today he lives on Chincoteague Island, where he installs and repairs residential and commercial telephone systems. David's interest in and concern for his home's future development led him to run for town council this year, and his first term began in July.

Heather Rowe ('98) was finishing her Ph.D. at UVA when we saw her at last fall's reception.

Bob Shiffer (M.A. '75) is Director of R&D for Carlisle SynTec in Carlisle, PA, the largest worldwide producer of single ply rubber roofing products, and a division of Carlisle Corporation.

Bob has spent his entire career with Carlisle, his employer since leaving W&M 29 years ago, and his job takes him around the world to China, Southeast Asia, South America, and Europe. “Over my career, I have influenced the production of over 3 billion lbs. of rubber products worldwide”, he says. “Quite a difference from my W&M research, when I produced and separated less than 3 grams of deuterated aldehydes!”

Phil Smith ('90, M.A. '91), his wife, **Kirstin (Adams)** ('94) and their 10 month old daughter Megan dropped by for a visit last spring. Phil and Kirstin, both with Ph.Ds from UVA, are in the Army and working at Aberdeen Proving Grounds.

Robin Southward ('91, M.S. '95) received her Ph.D in Applied Science at William and Mary in 1996, and is a chemist at NASA-Langley.

Steve Tang ('82, Ph.D Lehigh, MBA Wharton School of Business) is active in the hydrogen, fuel cell and alternative energy community. He has been a member of the DOE's Hydrogen Vision and Hydrogen Roadmapping Teams, and serves on the New Jersey Bureau of Public Utilities' Clean Energy Council. As President and CEO of Millenium Cell for nearly four years, Steve guided the development of their proprietary technology to safely store, generate and deliver pure hydrogen for use in fuel cells and internal combustion engines.

Ken Updike ('76), who lives in Roanoke, VA, is National Service Director for Liberty Mutual Insurance Co. He remembers shelling out well over \$100 (a goodly sum in the 70s) to purchase a hand-held calculator for p-chem (these devices had just come on the market). By today's standards, they did very little: all Ken's could do was add, subtract, multiply, divide and take the square root. He recalls that his excitement over being one of the first to have a personal calculator fell flat when Kranbuehl or Orwoll—he doesn't remember which ogre it was—would not allow him to use it for tests because it would have given him unfair advantage over those students who couldn't afford such a calculator. Fortunately he had kept his slide rule.

Alan Veeck ('91) works for Freemarkets.com. He and his wife Michelle Fuhrman Veeck ('89) have three children.

Josh Wallach ('96) was here this August to attend the Advanced Placement Institute in Chemistry, a one-week course designed to help teachers learn how to teach AP courses, held at W&M for the third year. He is teaching at Granby High in Norfolk, and his wife Diane is an optometrist there. Josh and Diane are expecting their first child in February.

Winfred “Dusty” Ward ('54) graduated from MCV in 1958, and practiced in three fields before retiring in 1999—family practice, psychiatry and infectious disease; but he says his subsequent work as a medical missionary has proved some of the most rewarding he has ever done. His favorite memory of William and Mary is of Dr. Guy telling him, “Do it calmly, but right.”

Seth Wilson ('94) and his wife Amy (Davidson), W&M government '94, live in central Massachussetts. Seth is a patent attorney in Hartford, CT, whose work is focused on intellectual property litigation, and Amy is a prosecutor in Northhampton, MA. They have two children—Jack, 4, and Isabelle, born this summer.



Robert Seeherman, left, receives his undergraduate diploma from President Sullivan.

Doctor Seeherman Gets His Chemistry Degree

In February, Robert Seeherman became a member of the Class of 2004, when he received a bachelor's degree in chemistry from William and Mary in a private ceremony in President Sullivan's of-

fice. Dr. Seerherman, who practiced medicine for 40 years before retiring in 1986, now lives in Norfolk. Here is how he came to receive his diploma in 2004.

More than 60 years ago he transferred from the University of Scranton in his junior year as a chemistry student, into a program at the College which allowed students to pursue professional degrees after completion of their junior year. This was during World War II, and there were many critical positions left open which programs like this at William and Mary and other colleges helped to fill. Seeherman enrolled in medical school after his junior year, graduated with a degree in medicine at 22, and never looked back.

At least, not until much later, when, after reflecting on being the only member of his family without an undergraduate degree, last year he contacted Ed Pratt, dean of students at W&M. Ed was able to verify Seeherman's enrollment, credits and involvement in the program, and the rest is history.

Old Rogers Recollections



Sorry, no recollections of Old Rogers in this year's newsletter—this summer Trevor, Shirley and their German Shepard Athena set out in the RV for Moose Jaw and Calgary!

2004 Chemistry Concentrators and Their Destinations

	Jane Ann Alston	research assistant at the National Cancer Institute, NIH
	Peter Farquahard Best	(Dec. '03) not reported
	Alana Nicole Brown	(Dec. '03) not reported
◊ ^D ^M	Andrew Henderson Brown	(Dec. '03) graduate studies in chemistry, UNC-Chapel Hill
	Daniel Clinton Burnette	not reported
	Erin Michelle Carson	seeking employment
	Courtney Alexandra Cherok	graduate studies in chemistry, N. Illinois
	^M Kathryn Elisabeth Clark	work in sales and marketing in Maryland (chem/mkt)
	^M Michael William Clark	undecided (chem/gov't)
	Krista Maria Collopy	(Aug. '04) studies in fashion design, Parsons School of Design
	^H Charles Wallace Crawford	graduate studies in chemistry, UC-Berkeley
◊ ^M ^H	Elizabeth Kathleen Culyba	undecided
	Brittany N. Davis	not reported (senior year in Spain)
	Faheem Faisal Haque	not reported
	◊ ^H Mirth Tucker Hoyt	graduate studies in chemistry, U. Illinois-Urbana Champaign
	Richard Albert Huddleston	not reported
	Crystal Marie Irwin	masters program in chemistry, W&M
	Alexander Thomas Jenkins	pharmacy school, UNC-Chapel Hill
	Jessica Leighann Johnson	graduate studies in pharmacy, VCU School of Pharmacy (chem/english)
	^H Kelly Lynn Kennett	medical school, MCV
	^H Mary Gratia Kim	remaining for another semester to complete a degree in fine art
	Somang Hope Kim	not reported (Dec. '03)
	David Matthew Krouse	masters program in chemistry, W&M
◊ ^D ^M ^H	Nicole Danielle Litvinas	graduate studies in chemistry, Stanford
	Katherine Lynn Moynihan	work for year before graduate studies in biochemistry at Vanderbilt
	Monique Bih Nchotu	not reported
	Katie Elizabeth Nussbaum	physician's assistant school, George Washington U.
	Timothy Bruce Oliver	(Aug. '04)
	Howard Harvey Orange	culinary operations manager, Busch Entertainment Corp, Philadelphia
	Chang Soon Park	dental school
	^H Kristin Ann Plichta	MD/PhD program, Penn State
	^H Katherine Ellison Potter	undecided; perhaps a position in Americorps (chem/intro)
	Estella Callie Raulfs	graduate studies in biochemistry, VPI & SU (chem/bio)
	Bryn Alane Reinecke	graduate studies in chemistry and biochemistry, U. South Carolina
	Stephanie Jean Rochford	remaining for another semester to complete a degree in sociology
	Benjamin Caen Rothmel	legal assistant, Snoudshe, Nanygan & Sachs (chem/gov't)
	Kathleen Marie Ryan	research chemist, Alpharma Pharmaceuticals
	Amanda Victoria Sanders	not reported
	◊ ^M ^H Olivia Erin Schroeder	veterinary school, U. Penn
	Robert Seymour Seeherman	Hahnemann Medical School, Philadelphia
	Armen Yuri Sharabian	hopes to enter the masters program in chemistry, W&M
	^H Todd Bradley Showalter	graduate studies in chemistry, UNC-Chapel Hill
	Prabhat P. Shrestha	undecided (chem/psyc)
	◊ ^H Steven Scott Silvonek	medical school, Penn State
	John William Joseph Slavin	(Aug. '04) applying to chemistry grad school for Fall '05
	Joana Porto Soares	graduate studies in medicinal chemistry, UNC-Chapel Hill
	◊ ^M ^H Sarah Marguerite Stamps	medical school, UVA (chem/bio)
	^H Kathryn Michelle Louise Taylor	graduate studies in chemistry, UNC-Chapel Hill
	^H Diana Christine West	graduate studies in chemistry, U. Illinois
	Aaron Marshall Wilson	graduate studies in forensic science, Marshall U.

◊ **PBK**

^D **Dow Scholar**

^M **Monroe Scholar**

^H **Honors in Chemistry**

Departmental Awards

William George Guy Prize in Chemistry
Virginia ACS Award
American Institute of Chemists Award
Alfred Armstrong Teaching Assistant Award
Hypercube Award
Merck Index Award
Alumni Undergraduate Research Award
Blanton Mercer Brunner Scholarship

Nicole Latvinas
Mirth Hoyt
Liz Culyba
Olivia Schroeder, Sarah Stamps
Kat Potter
Krista Collopy, Kristin Plichta, Steve Silvonek
Olivia Schroeder, Sarah Stamps
Liz Culyba

2003 Chemistry Reception

AT LAST FALL'S RECEPTION WE WELCOMED BACK Geordie Grant ('68), Rick Platt ('72), Ken Updike ('76) with his wife Gale, and John Gilmer ('78). Eugene Aquino ('88) and his sister Eileen (W&M '87) stopped by. We also enjoyed talking to Jeff Molloy ('90), Robin Southward ('91), Brian Hogge ('93), and Wayne Brubaker ('93). We visited with Michael Repucci and Heather Rowe, both Class of '98, and with Cathy Higgins ('99). We were pleased to see Ryan Carra ('02) and the Doyles, Alex and Elizabeth (both also '02), with their son Patrick. Chris Henry and Jonathan Todd from the Class of '03 joined us as well.



The Doyles—Alex, Elizabeth, and Patrick



Trevor Hill enjoyed his reunion with Geordie Grant.

Gary DeFotis, Wayne Brubaker and Brian Hogge are engrossed in discussion.



Bob Orwoll welcomes back Rick Platt.



Dave Kranbuehl catches up with Ken and Gale Updike and Heather Rowe.



Eugene Aquino and his sister Eileen pause for a picture with Bob Orwoll outside the conference room.



John Gilmer and Trevor share some pleasant memories.



The Updikes visit with Randy Coleman.

Final fractions...

Chemistry held its Magic Show last spring, and everybody seemed to have a good time:



...the kids,



...the Chemistry students,



...and the faculty!

...and, oh yeah, there were fireballs, too.



Departmental runners



Several members of the “organic division” regularly compete in local 5–10K races. Left to right in the photo above, taken after a 6K race at Cheatam Annex, are Elizabeth Harbron, Rob Hinkle, Chris Abelt, and Katie Abelt, 13. It was a day of threes for chemistry: Rob finished 3rd overall in this race, Elizabeth took 3rd overall among women, Katie was 3rd in her age group, and her dad had the 3rd fastest time in our group! As of this writing, Rob is Colonial Road Runners points frontrunner for 2004.



Some of our chemicals have been around a looong time...

This bottle of 2-anilinopyridine was discovered during an inventory of chemicals in the main stockroom this summer. Check the date stamp; it must have been ordered by one of Mr. Katz's predecessors.



We took this photo of the Smiths—Phil ('90), Kirstin ('94), and their daughter Megan—during their visit last spring.



Anne McNeil ('99) returned last spring as a speaker in our Spring Seminar Series. Her topic was “Interfacing Pharmaceuticals and Academics: The Chemistry of β -Amino Ester Enolates.”

Chemistry Invites you to our reception during Homecoming 2004!

The Department is having its wine and cheese reception for chemistry graduates in Rogers Hall on Friday, October 15, starting at 5:30 p.m. We look forward to seeing you there. Same budget restraints as last year, so we won't mail additional individual invitations to alums who graduated 5, 10, 15 years, etc., prior to the most recent class year, as we have done several times recently. If you can join us, please try to let us know by October 12.

You can e-mail us at pxhilg@wm.edu, give us a call at 757-221-2540, or return this form to:

Pat Hilger
Chemistry Department, College of William and Mary
P.O. Box 8795
Williamsburg, VA 23187-8795

Yes, I plan to attend the Chemistry reception on Friday, Oct. 15, 2004, at 5:30 pm.

Name _____ Class of _____ No. of guests _____

Even if you're unable to come, please consider using this space to let us know what you're doing and mailing this form to us at the above address. We'd love to hear from you.

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