



The College Of

WILLIAM & MARY

# CHEMISTRY DISTILLATIONS

A DEPARTMENT OF CHEMISTRY NEWSLETTER

NOVEMBER 1992

**W**E hope that you will take the time to read this, our first effort at a newsletter for the department. Your first response might be: why a newsletter, and why now, after all these years? The reasons are several, including the fact that it is now possible to send a newsletter to our more than 1100 identified alumni. But we are motivated by much more than that. We have been gratified over the years to see a number of alumni at occasions such as homecoming, but wish that we could be in contact with more. Since the Chemistry department moved to "new" Rogers Hall in 1975, many more students have chosen to concentrate in Chemistry. In recent years we have graduated an average of about 35 students per class, nearly all of whom are ACS certified. A newsletter seems to be a good way to try to keep in touch with the larger number of graduates.

Through the newsletter we hope to inform you about the state of affairs in the Chemistry Department at William and Mary, to list our graduates (B.S. and M.S.) each year, to tell you about the faculty and changes in the department and its programs, and to update you on such things as the state of our instruments and the library. Perhaps we can induce a few more individuals to stop by when you visit the Williamsburg area. For those who graduated before the new building opened, we are now located on the new Campus, close to Phi Beta Kappa Hall. Finally, and possibly foremost, the department strives to maintain a quality undergraduate program in chemistry, and we see a newsletter as one more component of that process.

We would be happy to hear from you; please send your comments to Editor, Chemistry Distillations, at the address on the back.

## Remarks by the Chair

You have read the reasons why the Chemistry Department has decided to produce a newsletter at this time. By far the most important is our feeling that it can be a part of our effort to strengthen the undergraduate chemistry program at the College. That being the case, permit me to crow a little.

The department is extremely proud of the fact that we ranked 17th in the nation in the number of B.S. chemistry graduates (46), according to the most recent data (May 18, 1992 Chemical & Engineering News). Moreover, we ranked 6th in the nation in the number of

ACS certified graduates (41). In 1992, about 35 undergraduates, most of them rising seniors, participated in summer research in the department, funded by research grants obtained by the faculty and from a few summer fellowships from corporations and individuals. This provides the evidence that the program is not only large, it is healthy, and provides excellent opportunities to William and Mary students. We continue to have a number of fine honors papers presented each Spring, and this year's student speaker at Commencement, Susan Brown, was a chemistry concentrator.

As always, our students are headed for three principal career paths: graduate school, medical school, and industry. The growth of the program to our current size (we anticipate more than 50 graduates in each of the next several years) has occurred in all three areas.

The department's Master's program has also grown over the last few years, but at a more modest pace, and the department cooperates with the newly established Applied Science Program.

The College has been supportive of our efforts, and we have a quality program at all levels. The funding difficulties which the state of Virginia has experienced over the last several years have, of course, had an impact on our program. However, we are expanding into all of Rogers Hall and are in the process of conversion of the new space into laboratories, mainly for upper division work. This should be completed over the next year, and we invite our alumni and alumnae to visit us and see the new version of Rogers Hall.

The department chair is new to the position this July, taking over from Professor David Thompson, who served as chair for the past five years. These years were noted by the growth and development of the program, from about 35 concentrators per year to about 50, at a time when the growth in the size of the College was very small. In addition to his role as chair, Professor Thompson was the instructor in the first general chemistry course and in the combined roles was central to the success of the department in the last few years. Fortunately, he will continue to teach and do research in the Department.

On the personal side, we are sorry to report the departure of Professor Patricia Kane, who taught biochemistry in the department for two years, and was a Presidential Young Investigator. She accepted a faculty position at the SUNY medical school at Syracuse; we are recruiting this year for a biochemist to fill that position.

As the College moves into and past its tercentennial, we in the department look forward to the continuation of an outstanding undergraduate program in chemistry.

Steve Knudson

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## Current Faculty

<b>Chris Abelt</b>	organic
<b>Randy Coleman</b>	biochemistry (Director, Fresh/Soph Advising)
<b>Gary DeFotis</b>	physical (Garret-Robb-Guy Professor)
<b>Gary Hollis</b>	organic
<b>Dick Kiefer</b>	polymer/radiochemistry
<b>Steve Knudson</b>	physical
<b>Dave Kranbuehl</b>	physical
<b>Bob Orwoll</b>	physical
<b>Bob Pike</b>	inorganic
<b>Ted Putnam</b>	departmental administrator
<b>Gary Rice</b>	analytical
<b>Mel Schiavelli</b>	organic (Provost)
<b>Bill Starnes</b>	polymer (Gottwald Professor)
<b>Dave Thompson</b>	inorganic (Chancellor Professor)
<b>Jon Touster</b>	organic (Dreyfus Fellow)
<b>Robert Vick</b>	biochemistry (adjunct)

### Emeriti

**Alfred Armstrong**, 1976 (adjunct); **Ed Katz**, 1979;  
**Trevor Hill**, 1992 (adjunct); **Cirila Djordjevic**, 1992

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## Departmental Doings

### Faculty Honored

Over the past few years, several faculty have been honored by the College. Gary Rice and Chris Abelt have each been named by the Alumni Society as teacher of the year. This February, Cirila Djordjevic was awarded the Jefferson prize at Charter Day.

### Faculty Changes

This past year marked the retirements of Cirila Djordjevic and Trevor Hill. We congratulate them, but will miss their many contributions to the Department. Trevor continues to serve this year as adjunct professor; Cirila now writes up results of her past research.

Robert Pike joined the department this August. He brings excellent credentials and a strong record to the department. He comes to us from Brown University, at which he earned his Ph.D. in 1990 and pursued postdoctoral studies. His undergraduate days were spent at George Washington University. He adds to the

department's range of expertise and contributes industrial experience from four years at Monsanto in St. Louis.

Jonathan Touster will be visiting the department for two years thanks to a Camille and Henry Dreyfus Foundation Scholar/Fellow Program award. This program is intended to attract talented Ph.D. recipients to careers at undergraduate colleges. He will be working with Chris Abelt in teaching organic chemistry classes and mentoring research.

## Distinguished Chairs

The department has two endowed chairs, part of the college's Eminent Scholars Program, each held by a scholar well known in this country and abroad.

An endowment begun by Floyd D. Gottwald, Jr. in 1987 has allowed us to establish the Floyd D. Gottwald, Sr. Endowed Chair in Chemistry. The emphasis of the chair is to bring into the department an eminent scholar, preferably an individual with interests in an applied area of chemistry. The first and current holder of the chair is William Starnes, who joined the faculty in 1989, after experience in both industry and academia. Dr. Starnes, who also plays a major role in the Applied Science Program, is well recognized for his contributions to polymer chemistry and mechanistic studies of poly(vinyl chloride) degradation.

A second chair in the department is the Garrett-Robb-Guy Chair in Chemistry, named for three former long-time members of the chemistry faculty. The chair is awarded to a current member of the faculty by the dean, in recognition of teaching excellence and exceptional research. The chair was first awarded to Cirila Djordjevic, whose research is on the bioinorganic chemistry of vanadium and molybdenum compounds. Upon her retirement last year, the chair was awarded to Gary DeFotis, whose research in magnetism focuses on the discovery and study of new magnetic universality classes in both pure and mixed magnetic systems. Both have performed truly significant work recognized by their peers and have published prolifically at William and Mary.

## Instrumentation

We have been very fortunate over the past six years in upgrading and expanding the instrumentation within the department. A significant portion of our current holdings is the result of the Educational Trust Fund (ETF) set up by the state legislature. The remainder comes from competitive matching grants, contracts, and donations. We take great pride in the state-of-the-art instrumentation now available to our students for instructional and research purposes. A list of instrumentation obtained since 1986, cost, and source of funding is given on the following page.

Instrument	Yr	K\$	Source
PE DSC-7 Differential Scanning Calorimeter	88	65	grants
Nicolet 20DXB FTIR	87	70	grants/internal
GE QE-300 Multinuclear NMR	87	175	NSF/Keck Found.
Beckman DU-70 UV/VIS	88	25	ETF
Aminco Spectrofluorimeter	88	23	Research Corp.
Rheometrics Dynamic Analyzer	88	108	grants/internal
Waters 600-HPLC	88	45	ETF
HP 5888A GC-MS	89	108	internal
HP 5970 GC (2)	89	30	ETF
PE 1100B AA Spectrophotometer	89	47	ETF/grant
PE 1600 FTIR	89	17	
HP 5871 GC-MS	90	58	donation (HP)
Visotec GPC	92	39	NSF/ETF
Wyatt Light Scattering Photometer	92	22	NSF/ETF
Shimadzu Thermal Mechanical Analyzer	92	22	NSF/ETF

## Student News

### Chemistry Club

The Chemistry Club has changed substantially over the past several years with Gary Rice as the faculty advisor. Club activities in the fall focus on career options in chemistry, with talks given on applying to graduate school in chemistry, current trends in employment opportunities, and college resources available for seeking employment. The spring is dedicated to the production of our annual magic shows.

Fund raising has been very productive through test key sales for lower division classes, t-shirt sales, and magic show admissions. These funds have allowed the club to provide refreshments for the department seminars, sponsor a junior chemistry major reception every fall and one for the seniors at the end of each spring semester. The annual magic show produced by the club each spring has become a very popular event, with hundreds of hours given by students to prepare the shows. Proceeds from the shows and t-shirt sales allowed the club to donate a 4' x 8' enclosed bulletin board on the first floor of Rogers in 1988, which is used exclusively for display of department photos, honors recipients, and news.

For those of you wondering about the line of W&M chemistry t-shirts we have developed, we hope to be offering a new selection of shirts next year upon approval by the college. Stay tuned for next year's edition for an alumni sale announcement.

## 1992 Undergraduates

Christopher Sabine Almond	Jennifer Louise Marmorino
Michael Francis Acquavella	Elizabeth Colquitt Minor
Kimberly Ann Apollony	Stephanie Ann Monn
Belinda Kay Bauers	Janice Lynne Moseley
Sarah Caroline Blackstock	Tanya Renee Myers
Elena Bonaplata Revilla	Alexandra Leigh Nemecek
Susan Elanor Brown	Cedrine Juliette Nevoret
Kimberly Leann Cathey	Aileen C. Nicoletti
Karen Elizabeth Colehamer	Jeanine Lyn Perron
Christine Ann Marie Cook	Mario Pommier Seleme
Stacie Marie Cook	Robert Stewart Powell
Heather Alison Creswick	Vincent Judson Pugh
R. Donald Doherty, Jr.	Naveen Reddy
Christopher Eyke	Lee Ann Savio
David Brian Faddis	Shuchi Sharma
Babek Farzenah	Christina Kaye Short
Kevin Payne Gwaltney	Kristen Noel Siegfried
Marcelyn Carol Hawkins	Jean Marie Stephens
Timothy Earl Histen	John Scott Taylor
Stephen John Kellam	Steven A. Terranova
Michael Patrick Kelley	Herbert John Tobias
Theodore Joon Kim	Shannon Lee Vanhook
Daniel Joseph Krovich	Karen Lynn Wheless
William Charles Lappenbusch	Kimberly Dawn White
Karen Lynn Laslo	Lee Peter Yezek
Matthew Alexander Manning	

Of the 51 bachelor recipients (57% female, 43% male), 22 report going to graduate school and 15 to medical school. The remaining graduates have moved on to a variety of destinations.

### Student Honors and Awards for 1992

This past academic year the following students did senior honors research and graduated with honors:

Michael F. Acquavella, *The Synthesis and Characterization of 9,10-Dicyanoanthracene-2,6-Disulfonyl- $\beta$ -Cyclodextrin* (Abelt)

Elena Bonaplata Revilla, *Smoke Suppression in PVC via Activated Copper* (Starnes)

R. Donald Doherty, Jr., *Assembly of the Yeast Vacuolar  $H^+$ -ATPase* (Kane)

Timothy E. Histen, *Determination of Trace Elements in Chesapeake Bay Sediments by Atomic Absorption Spectrophotometry* (Rice)

Daniel J. Krovich, *A Study of the Magnetic Properties of the Spin Glass  $CoCl_2 \cdot H_2O$  and the Radical Species  $Ga(TBSQ)_3$*  (DeFotis)

(Continued on following page)

Jennifer L. Marmorino, *Preparation and Study of*  
 $Fe_{1-x}As_xCl(S_2CN(C_2H_5)_2)_2$  (DeFotis)

Stephanie A. Monn, *The Inclusion of the Local Exchange Potential in an Effective One Electron Model for Dihydrogen* (Knudson)

Tanya Renee Myers, *Utilization of a Helium Discharge Detector for the Determination of Organosulfur and Organophosphorus Pesticides* (Rice)

Aileen C. Nicoletti, *6-Cyano-2-Naphthylmethylene Derivatization of  $\beta$ -Cyclodextrin* (Abelt)

Mario Pommier Seleme, *Polymaleimides as Thermal Stabilizers for PVC* (Starnes)

Vincent J. Pugh, *The Magnetic Properties of the Mixed Magnet*  $Co_{1-x}Mn_x(SCN)_2(CH_3OH)_2$  (DeFotis)

Steven A. Terranova, *Copper Additives as Smoke Suppressants for Poly(vinyl chloride)* (Starnes)

Karen L. Wheless, *Rearrangement Reactions of Alkylboranes with Nitrones* (Hollis)

The following students also received awards at graduation:

Stephanie Ann Monn, William G. Guy Prize in Chemistry

Elena Bonaplata Revilla, American Chemical Society Distinguished Achievement in Chemistry Award

Timothy E. Histen, American Institute of Chemists Achievement Award

## Master's Candidates and Thesis Titles

Mark Ronald Dix, *Development and Characterization of an Electrothermal Vaporization System for a Helium Discharge Detector* (Rice)

Scott Tobias Forrest, *Synthesis and Inclusion of 1-(5-Cyanonaphthyl) diazomethane with  $\beta$ -Cyclodextrin* (Abelt)

David Kent Hood, *The Investigation of Organoboron Compounds and Organoboron/Nitrone Reactions* (Hollis)

Phillip John Kingsley, *Dielectric Monitoring and Control of an Automated Resin Transfer Molding Process* (Kranbuehl)

Sandra Lynn Poteat, *Evaluation of Scavenger Gases in a Helium Discharge Detector* (Rice)

Kerri Ann Robillard, *The Imidization Reactions of PMR-15 Polyimide* (Kranbuehl)

Philip Louis Smith, *Preparation and Characterization of (E)-1-Alkenylboranes and (E)-1-Alkenylboronates and an Investigation of Borane/Nitrone Reactions* (Hollis)

Margaret Cabell Wilford, *Reactions of Di-(1-naphthyl) diazomethane with  $\beta$ -Cyclodextrin* (Abelt)



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