



The Bulletin
of the
Virginia Section
AMERICAN CHEMICAL SOCIETY

JANUARY MEETING NOTICE

Randolph-Macon College
Ashland, Virginia
Friday, January 20, 2006

RECEPTION: **6:15 p.m.**
Lobby, Copley Science
Center, Calhoun and
Caroline Streets

PROGRAM: **7:15 p.m.**
Room 100, Copley
Science Center

MENU: Assorted Hot and Cold Hors d'oeuvres, Beverages, Assorted Desserts

PRICE: Members/Guests - \$12.00; Students, High School Teachers/Spouses,
Retired ACS Members/Spouses, Retired Teachers/ Spouses - \$6.00

DINNER RESERVATIONS: Please make reservations for the dinner by **NOON on Tuesday, January 17** by calling Barb Wirth at (804) 752-7368 or by e-mail to bwirth @ rmc.edu. **Please honor your dinner reservations!**

HOSTS: Dr. John Thoburn, (804) 752-3790; jthoburn @ rmc.edu
Dr. Brian Moores, (804) 227-3149; moores1129 @ cs.com

SPEAKER: **Dr. Henry R. Bungay**
Rensselaer Polytechnic Institute

TOPIC: **"Bioenergy Without Hype"**

JANUARY 2006

| S | M | T | W | T | F | S |
|----|----|---------------------|----|----|----------------|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| 15 | 16 | 17 | 18 | 19 | 20 | 21 |
| | | <i>reservations</i> | | | <i>meeting</i> | |
| 22 | 23 | 24 | 25 | 26 | 27 | 28 |
| 29 | 30 | 31 | | | | |

Dr. Henry R. Bungay

Emeritus Professor Henry Bungay has held positions at Eli Lilly (Indianapolis) and Worthington Biochemical Corporation (Freehold, NJ), the National Science Foundation and the Department of Energy, and was a professor at Virginia Polytechnic Institute and Clemson University before coming to Rensselaer Polytechnic Institute. He coordinated a U.S./U.S.S.R. cooperative program for enzyme technology and has visited India, Brazil, and Indonesia as part of National Academy of Sciences teams on biomass. His honors include the James Van Lanen Distinguished Service Award and the Marvin Johnson Award from the Biotechnology Division of the American Chemical Society, and is a Fellow of the AIChE. He has over 200 publications and has authored five books including *ENERGY, THE BIOMASS OPTIONS* that received an award as best technical book from the American Association of Publishers.



BIOENERGY WITHOUT HYPE

Energy from biomass has an exciting future, but the wild claims of those who think that it can replace much of our dependence on foreign oil are appalling. It is naive to view biomass as the panacea for the coming energy crisis because there is not enough in practical locations and its costs will be relatively high. The world will not run out of energy, but cheap energy may disappear. The exact economics are clouded by a myriad of subsidies for all of the competing energy sources and by world politics. Biomass feedstocks of most interest are sugarcane, corn, trees, and algae. Algae grow rapidly but require flat land for ponds, and such lands with plentiful water command top prices for agriculture. Sugarcane and corn exhaust the soil and require fertilizer and expensive cultivation. Trees are attractive because forests are sustainable and trees can do well on abandoned farms that could not compete with the fertile lands of the mid-western states. This assessment of biomass supply and conversion technologies provides global perspectives and exposes some alternatives as so impractical as to be almost fraudulent. Burning of wood has shifted from a prominent source of energy a century ago to a small but important contributor today. There will always be simple combustion of biomass with attractive economics where natural gas, coal, or petroleum are not readily available. Making gas or oil from biomass can only have tiny margins of profit because of intense competition from conventional producers. Biomass refining to furnish liquid motor fuels and byproduct chemicals is already practical and can be scaled up many fold. The upshot is that hydrolysis of biomass to its component sugars (and a major byproduct, lignin) should lead to a profitable, environmentally benign new fermentation industry while having a small but significant impact on overall consumption of energy.

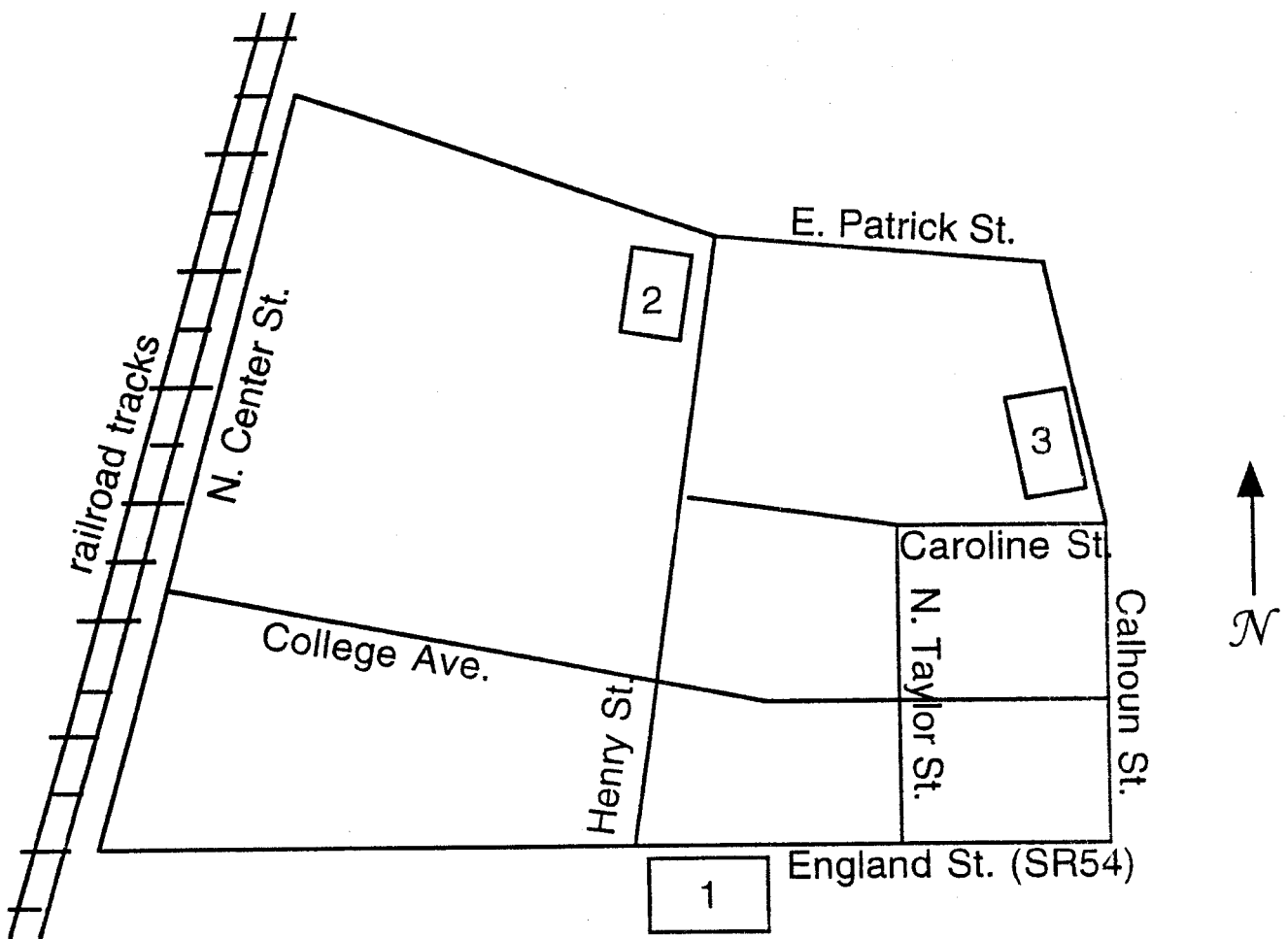
Happy New Year!



DIRECTIONS

From I-95, take the Ashland exit (exit 92B) and follow SR 54 (England Street) west into town. Calhoun Street is the second street after you cross Route 1 (Hanover Cleaners is on one corner and a check-cashing service on another). Turn right on Calhoun Street. Go two blocks, Copley Science Center is at the corner of Caroline and Calhoun Streets. Parking is available on the streets around the Copley Science Center.

MAP



Legend:
1: Ashland Post Office
2: Estes Dining Hall
3: Copley Science Center

***** VIRGINIA SECTION NEWS *****

FUTURE MEETINGS

| | | | |
|-----------|--|-----------|--|
| DATE: | February 10, 2006 | DATE: | March 10, 2006 |
| LOCATION: | University of Richmond Richmond, Virginia | LOCATION: | Virginia Military Institute Lexington, Virginia |
| HOST: | Dr. John Gupton | HOST: | Blue Ridge Section |
| PHONE: | (804) 289-8249 | SPEAKER: | Al Hazari |
| SPEAKER: | Dr. Donald Levy | | |

(POWELL LECTURESHIP)

| | |
|-----------|--|
| DATE: | April 13, 2006 |
| LOCATION: | University of Virginia Charlottesville, Virginia |
| HOST: | Dr. James Demas |
| PHONE: | (434) 924-3343 |
| SPEAKER: | Dr. John Butler |
| TOPIC: | "Beyond CSI: Exciting Applications of Forensic DNA" |

⇒ **STUDENT POSTER SESSION**

EXECUTIVE COMMITTEE MEETING

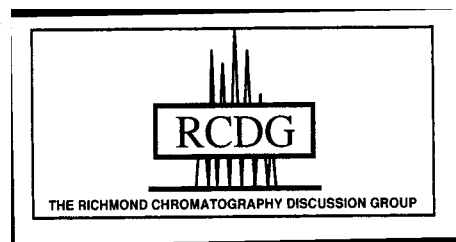
The Virginia Section Executive Committee will meet at 9:00 a.m. on Saturday, January 21 at the Downtown Campus of J. Sargeant Reynolds Community College, 7th and Leigh Streets in Richmond. The meeting will be in Room 662. Light refreshments will be served at 8:30 a.m. See the Section website for full directions and the meeting agenda:

<http://membership.acs.org/V/VA/>.

Additional information on the Executive Committee and on the meeting can be obtained from the incoming Section Chair, Dr. Dorothy Eseonu: (804) 257- 5615; dneseonu @vuu.edu. Members of the Section are invited to attend the meeting.

RICHMOND CHROMATOGRAPHY DISCUSSION GROUP

The Richmond Chromatography Discussion Group promotes the interests of chromatographic and other separation sciences by expanding the awareness and capabilities of individuals from the scientific community. The group publishes a newsletter, presents lectures, and provides student scholarships. For more information and a schedule of their seminars, check the RCDG website: <http://rcdg.org>.



CHANGES FOR FEBRUARY MEETING

Unfortunately, Dr. Roger Miller of the University of North Carolina, who was scheduled to be the Powell Lectureship speaker in February, has passed away. His place will be taken by Dr. Donald Levy from the University of Chicago. The meeting will be at the University of Richmond on Friday, **February 10** (an incorrect date was given in the December Bulletin).

REPORT ON THE NOVEMBER SECTION MEETING

The Virginia Section meeting was held on November 18 in the Jepson Science Center at the University of Mary Washington in Fredericksburg. Dr. John J. Meister gave an interesting presentation on research into ways to convert waste materials into useable products. The copolymers of lignin that have been produced are being developed for wood composites. provided samples of the subject of his interesting talk. Ms. Melissa Tyrone, senior chemistry major from Long Island, New York and secretary of the student affiliate chapter at UMW, introduced Dr. Meister. His talk was preceded by a delicious pre-Thanksgiving dinner. Thanks to Dr. Roy Gratz and his colleagues and students at the University of Mary Washington for organizing and hosting this meeting.

REPORT ON THE DECEMBER SECTION MEETING

The December 2005 meeting of the Virginia Section was held on Friday, December 2 at Afton Chemical Company in Richmond. Over 70 persons enjoyed a fine meal, tours of the Afton research facilities, and an engaging talk on "Caveman Chemistry" by Dr. Kevin Dunn of Hampden-Sydney College. Dr. Dunn described a laboratory-based chemistry course based on chemical technology projects. He included demonstrations of some of the work done by his students. Dr. Dunn has written a book on his course materials. The full text and much more can be found on his website <http://cavemanchemistry.com>.

Dr. Joseph Pompano, Section Chair, presented teaching awards to Mrs. Pam Edwards of Matoaca High School in Chesterfield County (high school chemistry teaching) and to Mr. Gary Graham of Chancellor Middle School in Spotsylvania County (middle school science teaching). Mrs. Edwards was introduced by her Principal, Mr. Steve Cunningham. Mrs. Patricia Eye, Principal of Chancellor Middle School, introduced Mr. Graham. Dr. Ann Sullivan, Director of the Virginia Section Chemistry Olympiad, recognized Ms. Joy Ross of the Maggie Walker Governors School and Mr. Larry White of Harrisonburg High School for the accomplishments of their students in the 2005 Olympiad.

STUDENT AFFILIATE CHAPTERS RECOGNIZED

The ACS Society Committee on Education has recognized the student affiliate chapter at James Madison University for outstanding work in the 2004-2005 academic year. The school received a **commendable** award, the second highest award granted by the ACS. This is the second consecutive year that the JMU chapter has been recognized. Michael Petretich was the President and Barbara Reisner and Kevin Minbiole were the faculty advisors.

VIRGINIA SECTION OFFICERS FOR 2006

| | | |
|---------------------|---|---|
| CHAIR: | Dr. Dorothy Eseonu Department of Natural Science Virginia Union University Richmond, VA 23220 | (804) 257-5615 FAX: (804) 354-5928 e-mail: deseonu @ vuu.edu |
| CHAIR-ELECT: | Dr. Will H. Lewis, Jr. Philip Morris, USA P. O. Box 26603 Richmond, VA 23261 | (804) 274-5869 FAX: (804) 274-5426 e-mail: will.h.lewis @ pmusa.com |
| VICE CHAIR: | Mr. Charles E. (Trey) Gregory III 7817 Curtisdale Road Richmond, VA 23231 | (804) 504-8840 FAX: (804) 504-8871 e-mail: Cgregory @ bichemicals.com |
| SECRETARY: | Mr. Kenneth Chapman 16080 Countyline Church Road Ruther Glen, VA 22546 | (804) 448-4852 FAX: (804) 448-9323 e-mail: kmc97 @ aol.com |
| TREASURER: | Dr. Brian Moores 13033 Little Bridge Drive Doswell, VA 23047 | (804) 227-3149 FAX: (804) 227-3149 e-mail: moores1129 @ cs.com |

Dr. R. Gerald Bass was elected to another three-year term as a Councilor; Dr. Sheryl Baldwin will serve a three-year term as Alternate Councilor; and Dr. James Demas was re-elected as Trustee for another three-year term. The term for the officers listed above is one year. The new officers took office on January 1, 2006.

WORDS OF WISDOM FOR JANUARY: *" If life knocks you flat on your back, you're still in a good position to look up! "*

THE CHAIR'S CORNER

Dear Colleagues,

We begin this year with excitement and enthusiasm. A sincere thanks to Dr. Joe Pompano, the 2005 Virginia Section ACS Chair for a great job and for his cooperation with other officers. Many thanks to the Richmond Afton Research Laboratories for hosting a wonderful end of the year meeting, with tours of their Research Center, delicious meal, and a treat with "Caveman Chemistry" presented by Dr. Kevin Dunn. Congratulations to the Middle and High School Teachers and Chemistry Olympiad Team Award winners. The year 2006 will be very exciting for the Virginia Section with the January meeting at Randolph-Macon College, where Dr. Henry Bungay will be speaking on "Bioenergy without Hype." Meetings have been planned through the end of the year.

The meetings and other Section activities bring scientists, especially chemists, together to fellowship and exchange ideas. I invite everyone to attend as many meetings as possible. Everyone's contribution counts. The Section invites and welcomes persons to serve on the committees and to be officers. Persons interested in forming new committees are also welcome. The Executive Committee meets twice a year; the first meeting of 2006 will be on January 21, at J. Sargeant Reynolds Community College, Downtown campus. The second meeting will be in May (place and date to be announced). I invite every member to come to the meetings and to help out with Section activities. 2006 is a year of new ideas--we need volunteers to provide ideas, create committees, and serve on them.

Many thanks to those who volunteer their time for the Section's activities, especially to Dr. Jim Beck for his invaluable contributions. Visit our website <http://membership.acs.org/VVA/> for the Section news. Together, we will have a great year. Hope to hear from you and see you at all the meetings. Please contact me with questions, ideas, suggestions, and concerns.

Dorothy N. Eseonu
Section Chair for 2006
dneseonu@vuu.edu (office)
deseonu@yahoo.com (home)



Chemistry at Randolph-Macon College

The chemistry program at Randolph-Macon is designed to prepare a student for graduate school, medical school, dental or veterinary school, or a career in industry, government, or academics, but it is first and foremost a degree in the liberal arts. Therefore, a chemistry major will complete a core of arts, humanities, and social science courses as well as an ACS-approved major curriculum. Chemistry majors are required to complete two-term sequences in general chemistry, organic chemistry, analytical chemistry, and physical chemistry, and three terms of advanced laboratory. Students may complete the major requirements by enrolling in any two terms of any of the advanced electives: biochemistry, inorganic chemistry, advanced organic chemistry, medicinal chemistry, or polymer chemistry. Also required is a one-term introduction to research and a one-term chemistry seminar course. Students may also choose to major in chemistry with an emphasis in one of several areas. These areas include forensic science, biochemistry, research, or chemical education. Each area has its own course requirements in addition to the core curriculum.

Students who wish to complete the requirement for the ACS-approved degree must elect the biochemistry and inorganic chemistry courses, and must also complete four terms of advanced laboratory and the two-term Senior Project in Chemistry in addition to all other requirements for the degree.

The proximity of Ashland to Richmond and to Washington, DC enables students to carry out internships at state or federal laboratories, as well as at the research laboratories of industrial corporations, and makes it convenient for faculty to schedule trips to such facilities. Chemistry majors at Randolph-Macon are encouraged to work as student assistants in the chemistry laboratory program. By doing so, they gain valuable teaching experience and consolidate their knowledge of laboratory procedures.



Randolph-Macon
College
Ashland, Virginia

The hallmark of the R-MC Chemistry program is a dedication to cutting-edge research performed at the undergraduate level. The College's Summer Undergraduate Research Fellowship (SURF) program (which was begun in the chemistry department in 1997) allows 30-40 students per summer to work one on one with faculty members across the curriculum. In return for their labors students are given a stipend, free housing on campus, and funds to travel to local, national, or international meetings to present the results of their research. Approximately 5-7 chemistry students participate in the program each summer. Their work has resulted in publications in peer-reviewed journals, as well as presentations at national and international meetings. In 2004, students traveled to Orlando, FL for the National ACS meeting, as well as to Corfu, Greece, for the 20th International Conference on Organometallic Chemistry. Last year they attended the ACS meeting in San Diego, California.

The chemistry department is housed in Copley Science Center, a three-story building which also houses the departments of biology, computer science, mathematics, psychology, and physics. Standard scientific instrumentation is available for student use. In addition, we have a state-of-the art polymer characterization facility, which includes Waters Breeze® GPC instrumentation as well as a DSC and TGA equipment (both Perkin-Elmer). We also have a JEOL 400 MHz FT NMR with a tunable broadband probe, which is used by both students and faculty. Other equipment includes an atomic absorption spectrometer, a gas chromatography/mass spectroscopy machine, HPLC, and two FT-IR instruments, one equipped with a microscope. Each faculty member is assigned a research laboratory, and the department houses a small chemistry library. Additional chemistry monographs, textbooks, and periodicals are located in the McGraw-Page Library on campus.

Faculty include Dr. April D. Hennis Marchetti, Dr. Rebecca Michelsen, Dr. Nora Green, Dr. Serge Schreiner (department chair), and Dr. John Thoburn.

QUESTION FROM THE PAST

This question was asked in the December Bulletin: For a number of years, the Virginia Section sponsored a Vendors Show at the Awards Meeting, held in September at Virginia Commonwealth University. One particularly successful Show featured 24 companies, including Waters Chromatography, Brinkman Instruments, Fisher Scientific, Perkin-Elmer Corporation, Chemical Abstracts Service, Corning Glass, and Thomas Scientific. **When was the first Vendors Show held and who received the Section's Distinguished Service Award at that meeting?** The first Vendors Show was held at Virginia Commonwealth University on September 26, 1986. At that meeting, the Section presented its Distinguished Service Award to Dr. Carl Lunsford who was the Senior Vice President and in charge of Research and Development at the A.H. Robins Company in Richmond. There were 12 vendors that year, including J. T. Baker, Ace Glass, Hewlett Packard, Varian, Milton Roy, and VWR Scientific. The second Vendors Show, held on September 25, 1987, attracted 24 vendors.



New question: The identity of "Don Chalet" was revealed in the December 1995 issue of the Bulletin. **Who was the infamous CIA operative whose code name was "Don Chalet"?**

LABORATORY COORDINATOR POSITION

The Chemistry Department at James Madison University is seeking someone to serve as the coordinator for the Chemistry Department's laboratory program. This is a AIP faculty position with a 10 or 12 month appointment. The laboratory coordinator will teach chemistry laboratory courses for science majors, supervise laboratory assistants, and prepare chemicals, apparatus and equipment for upper-level courses. The coordinator will work closely with chemistry faculty and staff to provide student instruction in laboratory techniques and chemical theory. Master's degree in chemistry preferred or master's in related scientific discipline may be considered. Candidates should have a demonstrated knowledge of chemistry laboratory techniques and theory plus possess supervisory and teaching experience. Chemical safety training is desirable. For more information and application instructions, visit joblink.jmu.edu

2006 CHEMISTRY OLYMPIAD

The Virginia Section will host the 2006 Chemistry Olympiad for all high school chemistry teachers and students who are interested in participating. The Local Section competition will begin on Saturday, March 4 and end on Saturday, March 25, 2006. There will be two options for the participants with several Virginia colleges hosting the competition, or individual high school teachers can make arrangements within their schools to provide secure testing sites. The deadline for applications will be February 24, 2006. For more information and the application forms, either hard copy or on-line, go to the Virginia Section Chemistry Olympiad site at <http://membership.acs.org/V/VA/olympiad/default.htm>.

The students who do well in the Local competition will be nominated to compete in the National competition hosted at J. Sargeant Reynolds Community College in Richmond, Virginia on April 22. These students will compete for 20 positions in the study camp at the US Air Force Academy in Colorado. The five member International Chemistry Olympiad (IChO) team will be chosen from these 20 students to compete in the IChO. This year the 38th International Chemistry Olympiad competition will be held in Gyeongsan, Republic of Korea on July 2-11, 2006. Dr. Ann Sullivan is the coordinator for the Chemistry Olympiad in the Virginia Section.

JOIN A COMMITTEE!

Help out the Virginia Section by serving on one of our committees: Awards, Chemical Education, Chemical Technicians, Chemistry Olympiad, Entertainment, Government Relations, Hospitality, Media/Public Relations, Membership, Minority Affairs, National Chemistry Week, Publications, Safety, and Student Affiliates. To get more information, volunteer your services, or make suggestions, contact Dr. Dorothy Eseonu at Virginia Union University, (804) 257-5615; [dneseonu @vuu.edu](mailto:dneseonu@vuu.edu). Suggestions for new committees or committee activities are welcome.

VIRGINIA SECTION AWARD WINNERS

The Virginia Section of the ACS presents these three awards annually: the Distinguished Service Award, the Distinguished High School Chemistry Teacher Award, the Distinguished Middle School Science Teacher Award. Here are the award recipients since 1990:

| YEAR | SERVICE | CHEMISTRY TEACHER | MIDDLE SCHOOL TEACHER |
|-------------|-------------------|--------------------------|------------------------------|
| 1990 | James Patrick | Eugene Shepherd | Jeannie Bishop |
| 1991 | James Beck | Larry White | Carole Forkey |
| 1992 | Donald Shillady | Daniel Lynch | Ronnie Sours |
| 1993 | Charles E. Thomas | Robert Jones | Patricia Zahl |
| 1994 | William Smithey | Judith Bohince | Leslie Deane |
| 1995 | John Comerford | Janet Farmer | Alpheus Stafford |
| 1996 | Sheryl Baldwin | Anne Stowe | Daniel Avent |
| 1997 | Beverly Orndorff | Christy Thomas | John Stenz |
| 1998 | Philip Burks | Linda Cook | Brian Hall |
| 1999 | James Demas | Cynthia Wall | Dixie Leathers |
| 2000 | Carl Trindle | Susan Price | Sarah Datovech |
| 2001 | Patrick Barber | Joy Ann Ross | Bonnie Stinson |
| 2002 | Lidia Vallarino | Christine Bierwirth | Betsy Ameen |
| 2003 | | Leonard Klein | Robert Pennington |
| 2004 | John Fenn | Pamela Gentry | George Fohl, Jr. |
| 2005 | Ann Sullivan | Pam Edwards | Gary Graham |

INFORMATION FOR THE BULLETIN

Articles and information for the Virginia Section Bulletin should be sent to the Editor:

James D. Beck
1977 Vesonder Road, Petersburg, VA 23805
(804) 733-5286 beckjd@juno.com

Announcements of positions available are especially welcomed and are printed at no charge.

VIRGINIA SECTION WEBSITE

Get all the Section news and lots more on the Virginia Section website, located at <http://membership.acs.org/V/VA/> and maintained by Dr. Ann Sullivan, Webmaster.

PHOTOS FROM DECEMBER SECTION MEETING



Left to right:
Steve Cunningham, Principal, Matoaca High School
Joseph Pompano, Chair of the Virginia Section
Pam Edwards, Distinguished Service Award for High School Chemistry Teaching
Gary Graham, Distinguished Service Award for Middle School Science Teaching
Shirley Eye, Principal, Chancellor Middle School



Dr. Kevin Dunn and his assistant turn wool into string



Ann Sullivan displays the 2006 Chemistry Olympiad poster



Gary and Susan Graham



Chemistry Olympiad sponsors Joy Ross and Larry White



Chair Joe Pompano presents a Teaching Award to Pam Edwards

THE BULLETIN

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Vice Chair - Mr. Charles (Trey) Gregory (804) 504-8840

Treasurer - Dr. Brian Moores, (804) 227-3149

Bulletin Editor - Dr. James Beck (804) 733-5286

Bulletin Publisher - Dr. Will Lewis (804) 274-5869

CAN YOU IDENTIFY THIS PERSON?



The photograph is from 1986 when the subject received the Distinguished Service Award for High School Chemistry Teaching from the Virginia Section. He received an undergraduate degree in chemical engineering from Lafayette College in Pennsylvania and a Ph.D. in chemical engineering from the University of Pennsylvania. He worked for Hercules and the E.I. DuPont Company before he began teaching at Buffalo Gap High School. In 1982 he joined the staff at Stuarts Draft High School, teaching chemistry and physics. His chemistry students performed in an outstanding manner on standardized tests and in college courses.

The "mystery person" in the December issue was Dr. Elizabeth Hairfield. Betty was the Section Chair in 1995.



