

Virginia Scientists

Volume XXIII, Issue 2

September-October, 2013

2013 Annual VAS & VJAS Meetings at Virginia Polytechnic Institute and State University

Virginia Tech President, Charles W. Steger, and Senior Vice President and Provost, Mark McNamee, welcomed attendees at the 91st VAS and 72nd VJAS Annual Meetings with warm hospitality and exciting STEM offerings, May 21-24, 2013. Special thanks go to the Local Arrangements Committee Co-Chairs, Peter Kennelly and Ashley Roberts, her capable staff, and everyone at Tech who contributed their time, effort, expertise, and financial support to make this event a success.



*Virginia Tech, President,
Dr. Charles W. Steger*



*Dr. Peter Kennelly at the VAS & VJAS Career Fair
2013 Annual Meeting*

Virginia Tech faculty provided one of many highlights; almost every Tech undergraduate and graduate STEM program was represented in the Exhibits/Posters Hall! It was a great experience for everyone, to be able to share their interests with so many Tech professors.

For three days, the Junior Academy, immersed 1,000 Virginia students, teachers, mentors, and several parents, in the STEM-rich atmosphere of one of America's premier research universities. Over \$40,000 in scholarships and prizes were awarded. Over 924 submitted papers were reviewed and commented on by a three-member

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Fall Undergraduate Research Conference Submission Deadline: October 4, 2013

The Fall Undergraduate Research Conference to inspire and support Virginia's future scientists will convene on **Saturday, October 26, 2013** at J. Sargeant Reynolds Community College. All Faculty mentors through-out the Commonwealth are invited to encourage their undergraduate students to submit grant applications describing proposed investigations by the deadline: October 4, 2013.

Undergraduates presenting proposals, will compete for five research grants of 500.00 each. Winners are encouraged to share their results with the Academy at the Annual Spring Meeting.

Dr. David Crosby, VAS President-Elect and Fish Health Specialist with the Virginia Cooperative Extension at Virginia State University, serves as this year's Program Chair. A description of the conference and submission forms are available at the Academy's website, vacadsci.org.



*VAS President, Dr. Deborah O'Dell & Past-President, Ralph Eckerlin
at the Annual VAS Banquet Spring, 2013*

*Remember ... See page 5
Our 90th Anniversary Year is Your
Opportunity
to Recognize the People Who Have
Made*

Annual Meeting at Va Tech

Continued from Page 1

Reader's Panel in March, and 634 accepted papers were judged for Session Awards by four-member Judges Committees, in each of the 30 sessions. An incredible undertaking, executed by hundreds of volunteer scientists and science educators, every year, and an incredible contribution to the future of STEM in Virginia! Our thanks to everyone!

VJAS named two students AJAS Fellows: **John Blue of Sabot at Stony Point and Carey Crooks of Woodside High School**. The VAS will sponsor them to represent Virginia's young scientists at the 2014 AAAS-AJAS Meetings in Chicago. The \$14,000 Frances and Sydney Lewis Scholarship was awarded to **Madison McCann, Chesapeake Bay Governor's School**. **Valentina Lohr**, a student at **Thomas Jefferson High School for Science and Technology**, won the \$5000 Henry MacKenzie Environmental Scholarship. Both scholarships are sponsored by the Virginia Environmental Endowment

One hundred and thirty-seven papers and 76 posters were presented in the Virginia Academy of Science's 16 disciplinary Sections. The Botany Section heard a special presentation on the new *Flora of Virginia* and its future development by co-author Dr. Chris Ludwig, Virginia Department of Natural Resources and co-founder of the Foundation for the *Flora of Virginia* Project. The Statistics Section heard "Evaluating the Health Effect(s) of Environmental Chemicals and Nutrition: Considerations for Highly Correlated Data" by Dr. Chris Jennings, Professor of Biostatistics, Virginia Commonwealth University. Virginia Tech Professor of Biological Systems Engineering, Dr. Warren C. Ruder addressed the Structural Biology, Biochemistry and Biophysics Section on "Synthetic Biology: Synthetic Circuits as a Tool for Biomolecular Systems Exploration". Dr. Leo Pilonen, Chair, Department of Physics, Virginia Tech, discussed "Matter-Antimatter Asymmetry and New States of Matter with the Belle Experiment" in a presentation to the Astronomy, Mathematics, and Physics Section.



VAS & VJAS Invited Lecturers

Dr. Deborah F. Kelly, Professor, Virginia Tech, Carilion Research Institute, gave the Sidney S. Negus Memorial Lecture. Dr. Kelly developed a novel approach to examine multi-component protein assemblies that regulate gene expression using high-resolution imaging to understand signal transduction

pathways. She holds a provisional patent for her newly established nanoscale purification platform which allows investigators to see cells and molecules in action. A leading researcher in 3D architectures of macromolecules, Dr. Kelly's Negus topic was "New Frontiers in Molecular Imaging".

The George W. Jeffers Memorial Lecture, "No Bones About it: How Are Shells Formed from Crystals?" was presented by one of Virginia Tech's newest Virginia Outstanding Scientists, Dr. Patricia Dove, C. P. Miles Professor of Science. (See accompanying article page 3.)

The Virginia Junior Academy of Science Lecture, titled "**Saving Mankind From Itself: Careers in Science and Engineering as Public Service**," was presented by



Dr. Marc A. Edwards, Charles Lunsford Professor of Civil Engineering, Virginia Tech. Recognized by *Time* magazine, in 2004, as one of America's leading scientific innovators and a MacArthur Fellow, Dr. Edwards is a leading authority on corrosion and lead in home plumbing systems. The recipient of many awards, he encouraged stu-

dents "to be true to their own heroic selves, to inconvenience themselves, to overcome their fears and to create the world they wanted to live in". Recently he received the Praxis Award in Professional Ethics (Villanova University), and the Virginia Outstanding Faculty Award.

2013 Academy Honors



VAS Departmental Memorial Scholarships

The Biology Department of Longwood University selected **Emily Whitman** to receive the \$1000 Vera B.

Virginia Honors Tech Researchers: Patricia M. Dove, 2013, Jeffers Lecturer, and Academy Member, Harold. E. Burkhart



This year's George W. Jeffers Memorial Lecture Honoree was 2013 Virginia Outstanding Scientist, Patricia M. Dove, Ph.D. The C.P. Miles Professor of Science, Department of Geosciences, and Director of the Biogeochemistry of Earth Processes Research Group at Virginia Tech, Dr. Dove is the world's

leading expert in the field of biomineralization. Using chemical principles and nano-scale analytical methods, her interdisciplinary work provides insights into how fossil skeletons record changes in environmental conditions over geologic time. Her new work is directed at understanding the consequences of rising carbon dioxide levels, and thus increasingly acidic oceans, for the tiny photosynthetic organisms that create much of our planet's oxygen. Research from her group also has important economic applications through collaborations with Civil Engineering to develop bio-inspired approaches to more sustainable industrial processes.

Dr. Dove received the F.W. Clarke Medal and twice received the U.S. Department of Energy Best University Research Award. She is a Fellow of the American Geophysical Union, Geochemical Society, European Association of Geochemists, and the Mineralogical Society of America; in 2012, she was elected to the National Academy of Sciences.

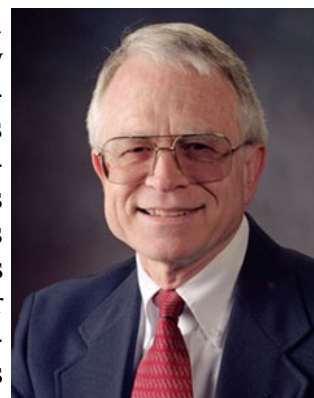
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Go to vacadsci.org, click "Join" ... At the bottom of the page, click "Individual Membership Form" to pay by check or PayPal.

Erratum

In a page 1 article in the last issue, the last update of Clayton's *Flora Virginica* was incorrect: 1762 is correct (not 1739). Thanks to Marion Lobstein, Chair, VAS Flora Committee.

VAS member Harold E. Burkhart, Ph.D. is University Distinguished Professor, Department of Forest Resources and Environmental Conservation at Virginia Tech. He is recognized worldwide for his unprecedented contributions in developing models for forecasting forest stand development, growth, and yield. As demand for forest products



increases and area for timber production decreases, the need for efficient management becomes acute; forest managers rely on Burkhart's work for making informed forestry decisions and scheduling harvests. His research has had far-reaching impact in Virginia, the U.S., and abroad. Addressing questions of tree spacing and the impact of thinning on growth and wood properties, Burkhart showed conclusively the effects of initial planting density on tree stand height.

Dr. Burkhart has received numerous forestry awards and is the author of the recently published, *Modeling Forest Trees and Stands*. He has received some funding from the VAS and, in 1983, he and Peter T. Sprinz won the Academy's J. Shelton Horsley Research Prize. *Some information selected from Gov. McDonnell's press release, 1/16/2013: <http://www.governor.virginia.gov/news/viewRelease.cfm?id=1606>*

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Annual Meeting at Tech

(Continued from Page 2)

Remsburg Memorial Scholarship. Her faculty mentor is Dr. Amorette Barber.

The Chemistry Department of the College of William and Mary chose **Natalie Z. Wong** to receive the \$1000 Blanton Mercer Bruner Memorial Scholarship. Natalie has received several scholarships, fellowships, and grants to support her research on solar cells. Her mentor is Dr. Kristin Wustholz.

Idil Cazimoglu has been selected by the Chemistry Department of the University of Richmond to receive the \$1000 Edward S. Harlow Memorial Scholarship. Idil has received two full-time summer research fellowships and will be the first author on a publication based on her work on the conformational analysis of siloxane-based ladder polymers. She plans to earn a doctorate in physical chemistry, her faculty mentor is Dr. Carol Parish.



New Fellows Inducted

Three new Fellows were inducted in the Class of 2013. The 76th Academy President, Thomas W. Haas, is Professor and Director of the Commonwealth Graduate Engineering Program and was Associate Dean for Academic and Faculty Affairs of the new School of Engineering at Virginia Commonwealth University.

The Councilor from the Section on Biomedical and General Engineering, Tom served in several Section offices and was Local Arrangements Chair for the Annual Meetings at VCU in 1989 and 1996. Dr. Haas is a Distinguished Member and past President of the Society of Plastic Engineers, and a Fellow of the Plastics and Rubber Institute (now the Institute of Materials, Minerals, and Mining) in the United Kingdom.

After serving for several years in offices of the Botany Section and the Academy's leadership, Michael H. Renfroe, Professor of Biology at James Madison University, was elected our 90th President. Mike is a member of Sigma Xi, the Advisory Board for the *Flora of Virginia* Project, past Director of the JMU Electron Microscopy Center, and past JMU Biology Graduate Coordinator. Dr. Renfroe's research has been supported by the National Science Foundation and three VAS research grants.



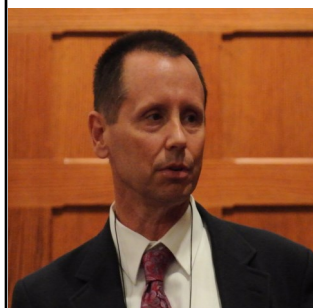
Werner Wieland, Editor of the *Virginia Journal of Science* and Academy President (2007-08), is Professor of Biology at the University of Mary Washington, where he was also Department Chair. A member of Sigma Xi, Werner received the Commonwealth of Virginia Distinguished Faculty Achievement Award (2001) and UMW's Mary Pinschmidt Award (2000). The American Fisheries Society designated Dr.



Wieland a Certified Fisheries Scientist (1985) and a Certified Fisheries Professional (2001 and 2007). His professional affiliations include the American Society of Ichthyologists and Herpetologists, Society of Systematic Biologists, and the Southeastern Fishes Council.

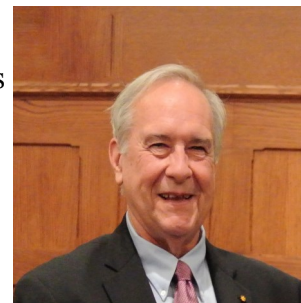
Ivey F. Lewis Distinguished Service Awards

Dr. Christopher Ludwig accepted the Distinguished Service Award on behalf of Foundation for a Flora of Virginia Project. Chris is President of the



Flora of Virginia Project Board and co-author (with Alan Weakley & John Townsend) of Virginia's first *Flora* since 1762. The *Flora*'s publication in December 2012 represents the achievement of an Academy goal, first funded in 1926.

Dr. James O'Brien, 71st President and Founding Editor of *Virginia Scientists*, was also recognized. After serving in Psychology Section offices and chairing VAS committees for several years, the Academy elected him Delegate to the American



Association for the Advancement of Science and the National Association of Academies of Science; he is in his second 5-year term in the Academy's statutory seat on the Board of Trustees of the Science Museum of Virginia having been appointed by Governors Kaine and McDonnell. Jim joined the faculty of Tidewater Community College in 1972.

1923



2013

90 Years of Service to Science and Virginia Honorees Through June 2013

Robert L. Ash
J. Rex Baird
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Rosemary Barra
Michael L. Bass
R. Gerald Bass
J. Ellis Bell
Harold M. Bell
Carvel Blair
Roger L. Boeve
Susan P. Booth
Richard B. Brandt
Arthur W. Burke, Jr.
John Cairns, Jr.
Ann E. Campbell
D. Rae Carpenter, Jr.
Donald G. Cochran
Richard C. Conti
Art & Carolyn Conway
Gregory C. Cook
Donald R. Cottingham
David M. Crosby
Donald W. Davis
Lou Dean
R. Dean Decker
John Delos
Thomas C. DeVore
William Dewey
Deborah M. DiCrocce
Ralph P. Eckerlin
Virginia C. Ellett

Elsa Q. Falls
Rita E. Frank
George C. Grant
Austin E. Grigg
Richard S. Groover
Thomas W. Haas
David B. Hagan
Karen Herrera
John L. Hess
Golde I. Holtzman
Raymond H. Kirby
Michael Kostarab
Kenneth R. Lawless
Preston H. Leake
Joel S. Levine
Marion B. Lobstein
Fred H. Lutze, Jr.
C. Anthony Macera
Frank Macrina
Harold G. Marshall
Jim & Lisa Martin
Eugene G. Maurakis
D'Arcy P. Mays
Conley K. McMullen
Leonard O. Morrow
J. James Murray, Jr.
Scott H. Newton
Judy H. Niehaus
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James P. O'Brien
Deborah O'Dell

Charles O'Neal
Beverly Orndorff
W. Allan Powell
Vera B. Remsburg
Michael H. Renfroe
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Maurice B. Rowe
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Arun K. Verma
Donna M. E. Ware
Stewart A. Ware
Tim Westfall
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Bobbie Whittier
Werner Wieland
Robert A. Willis, Jr.
Everett L. "Chick" Wisman
Joe & Laura Wittkofski
Mark & Sally Wittkofski
James F. Wolfe

There's still time to honor someone who was important to your life, your career, or your family.

Send your list with a check in an amount of your choosing to:

Art Conway, Executive Officer, Virginia Academy of Science, 2500 West Broad Street, Richmond VA 23220

Make check payable to "Virginia Academy of Science" and note "Remember Project" on the memo line.

Thank You!

(The Virginia Academy of Science is an IRS 501(c)3 charitable and educational organization.

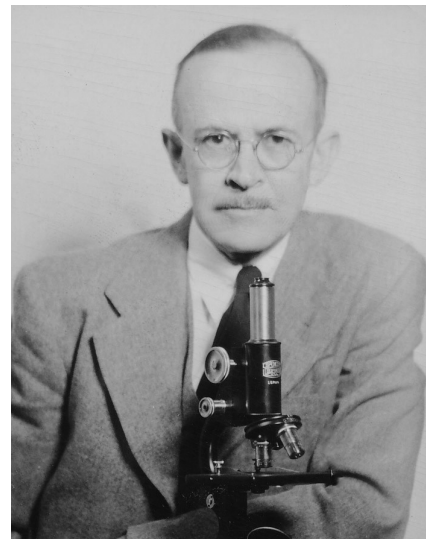
We do NOT share or sell our donor information ... TIN: 54-6038-285.)

Who's Been Who in VAS History ...

Ruskin Skidmore Freer, 17th President, 1939-40

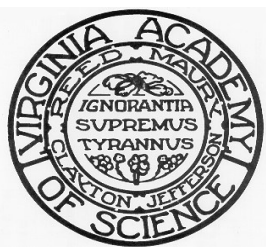
It is virtually impossible to travel through the Central Virginia Piedmont without encountering the heritage of Ruskin Freer: Lynchburg's Freer Loop Trail and Freer Nature Preserve, Lynchburg College's Freer Hall and the Gwynn Ramsey-Ruskin Freer Herbarium (LYN: *Index Herbariorum*) at Lynchburg College's 470-acre, A. Boyd Claytor III, Education and Research Center in nearby Bedford County.

Born April 2, 1894 in Kenton Ohio, he earned a Masters at Ohio Wesleyan and his doctorate from the University of Virginia. Dr. Freer joined the science faculty of Lynchburg College in 1923 and led scores of field trips in the Appalachians and Blue Ridge studying their flora, geology, and birds. He chaired Life Sciences (1932-63), was acting Dean of the College, Dean of Men, and Registrar. He retired in 1963 and was honored as the inaugural recipient of Lynchburg College's James A. Huston Award for Excellence in Scholarship. From 1926-80, he wrote a weekly nature column for the *Lynchburg News*. Reflecting his dedication to understanding and teaching Virginia's biodiversity, Freer collected 3,000 botanical examples which would become the foundation of the Ramsey-Freer Herbarium. Established by Dr. Freer in 1927, the herbarium now possesses almost 60,000 mounted specimens and represents the second largest plant collection in Virginia. He was a founding member of the Virginia Society of Ornithology, its first President, and the author of *The Birds of Lynchburg, Virginia and Vicinity* (1939). From 1934, Freer was Editor of *Claytonia*, the origin of the Academy's Committee on Virginia Flora and predecessor of the *Virginia Journal of Science*, for which Dr. Freer became its first Editor-in-Chief in 1940. In December 1938, as the Academy hosted the annual meeting of AAAS in Richmond, incoming President Freer appointed the committee that would establish the Virginia Junior Academy of Science (Heatwole). He died February 26, 1984. Sources: <http://www.lynchburg.edu/biology/ramsey-freer-herbarium>; <http://www.lynchburgva.gov/ruskin-freer-loop-trail>; <http://styrsky-j.web.lynchburg.edu/index.htm>; <http://www.virginiabirds.net/about.html>; Thelma C. Heatwole's *Early History of the Virginia Junior Academy of Science* -- <http://www.vacadsci.org/vjashist.htm>.



Picture, Courtesy of Lynchburg College Archives.

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Save the Date! October 26
2013 Fall Undergraduate
Research Conference
(Submission Deadline: October 4)
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Remember