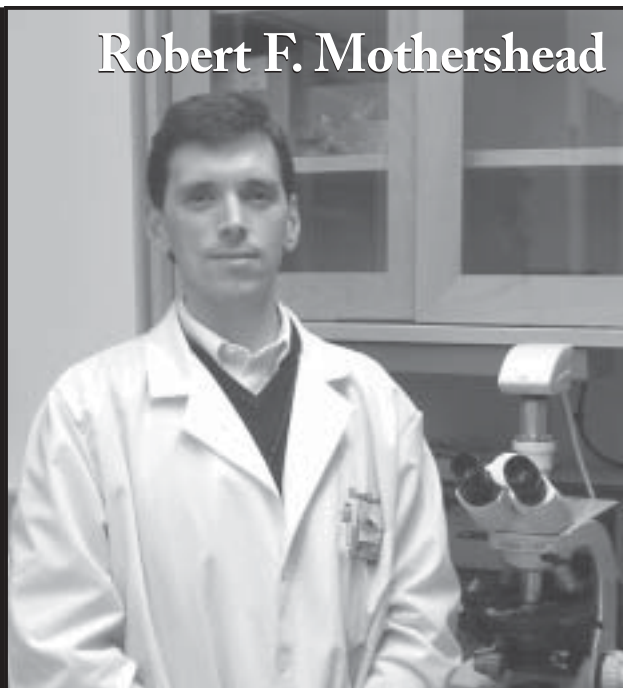


# Chesapeake Chemist

Maryland Section  
American Chemical  
Society

Robert F. Mothershead



**Forensic  
Chemistry  
at the  
FBI  
Laboratory**

**April 1  
McDaniel  
College**

*2004 Student Award Winners, page 4*

*Wine evening, Boordy Vineyards, page 6*

## Dinner Meeting Schedule

Thursday, April 1, 2004

McDaniel College, Westminster, Maryland

3:30-5:30 pm	Chemagination posters from highschool students (Eaton Hall, first floor)
6:00-6:50 pm	Social hour and registration
7:00-8:00 pm	Dinner
8:00-9:00 pm	Keynote speaker: Robert F. Mothershead (Auditorium) Forensic Chemistry at the FBI Laboratory

Cost of the dinner is \$20 for members, \$15 for retired members and nonmembers, and \$10 for students. For reservations, contact Dr. Shirish Shah at 410-323-0803(H) or via e-mail at dr.shah@juno.com.

**Directions to McDaniel College.** Travel north on Route 140 to Westminster. Proceed around Westminster on Route 140 through six traffic lights until the divided highway reverts to a two-lane road. Turn left on to Route 31. At the first traffic light turn left on to Route 32 ( Main Street). Turn right into the Harrison House parking lot.

### Forensic Chemistry at the FBI Laboratory

Forensic science has received much attention lately in the news and entertainment media. Chemistry is a critical component of many forensic science disciplines, from drug and white powder analysis to explosive residue, DNA and fingerprint examinations. Forensic chemistry is employed by several different groups of scientists within the FBI Laboratory. The Chemistry Unit applies forensic chemistry to the analysis of controlled substances, poisons, inks and dyes, lubricants, paints, polymers, adhesives, and numerous other sample types. The various uses of forensic chemistry at the FBI Laboratory will be discussed, with emphasis on the specialized applications within the Chemistry Unit.

**About the speaker...** Mr. Mothershead is a forensic chemist in the Chemistry Unit of the Federal Bureau of Investigation Laboratory at Quantico, Virginia. He graduated from the University of Virginia in 1987 with a Bachelor's degree in chemistry and received a Master's degree in marine science from the College of William and Mary in 1991. His thesis involved the analysis of various organic pollutants in shellfish, water, and sediment. He worked for two years at the University of West Florida as an analytical chemist, specializing in gas chromatography and mass spectrometry analysis. He then spent three years at the Virginia Institute of Marine Science, where he was responsible for the mass spectrometry laboratory in the Department of Environmental Sciences. He joined the FBI Laboratory in 1996, initially in the forensic research and training group, then later in the case working portion of the laboratory. His experience includes explosives, fire debris, controlled substances, and general chemistry examinations. He has been a member of the American Chemical Society since 1989.

### Companies donate gifts to this year's award winners

The Maryland Section would like to thank the following companies for their very gracious and generous donations of gifts to this year's student awardees: to the Merck Publishing group, represented by Pamela Barnes, for providing each awardee with a Merck Index and to Fisher Scientific, represented by Kerri Alexander, for providing mugs that are embossed with the periodic table.

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# Student



Matthew Buschman  
*Saint Mary's College*



Berneatta Whitlock  
*Coppin State College*



April Boyd  
*Towson University*



Darryl Guenther  
*University of Maryland,  
Baltimore County*



Janine Nunes  
*Morgan State University*



Cynthia Khoo  
*The Johns Hopkins University*



Sara Quatman  
*Goucher College*



Megan Daschbach  
*Mount Saint Mary's College*



Craig E. Lindemann  
*Loyola College*

# Awards



Mark Young  
*McDaniel College*



Melonie M. Powell  
*Anne Arundel  
Community College*



Kathleen A. Swam  
*Washington College*



Tammy Lutz  
*Community College of  
Baltimore County, Essex*



Rebecca Dodson  
*College of Notre Dame  
of Maryland*



Erica Stevens  
*Villa Julie College*



Jin Jin  
*Community College of  
Baltimore County, Catonsville*



Michael Siedsman  
*United States Naval Academy*

**Not Pictured**  
Daniel Kassaye  
*Baltimore City  
Community College*  
Beth Myers  
*Hood College*  
Alexandra Clark  
*Howard Community College*

## Section plans wine event at Boordy Vineyards, April 29

Join the Maryland Section April 29, 6:00 pm, at Boordy Vineyards for an evening of hor d'oeuvres, wine tasting, winery tours, and a special presentation on "The Chemistry of Wine: From Grapes Into Wine and Beyond," by Dr. Frank K. Patterson (talk at 7:45).

The cost for the evening will be \$25 for members, and \$20 for guests, retired members, and students. For more information or reservations, please contact Dr. Paul Smith at psmith@umbc.edu, subject: Boordy wine evening.

### **The Chemistry of Wine: From Grapes Into Wine and Beyond**

Winemaking dates back more than 6000 years, and yet we still do not fully understand all of the chemical reactions and products that contribute to the hedonistic properties of this beverage. This is the fascination of the subject. This presentation will cover the basic chemical composition of wine grapes in the vineyard and grape musts. We will then follow some of the principal chemical changes that occur through primary and, in some cases, secondary fermentation leading to the initial wine product. Some time will be spent on sulfite additions, barrel toasting and changes that occur during barrel and bottle aging of both red and white wines. The role of phenolics in wine will also be addressed since they represent one of the most important attributes of wine, including color, astringency, bitterness and red wine aging.

**About the speaker...**Dr. Patterson received his Doctorate in inorganic chemistry from the University of Connecticut in Storrs, Conn. He then joined the Du Pont Company, initially carrying out solid state research in their Central Research Department in Wilmington, Del. During his Du Pont career, he held a number of positions in basic and applied research, as well as in research management and marketing management. At one stage in his career, he accepted a three-year assignment in Europe, where he acquired a fondness for wine. Following retirement, Dr. Patterson founded Tradewines Inc., a wine education corporation. He develops and conducts customized wine tastings and seminars, and coordinates food and wine matching wine dinners. He also teaches wine courses at local colleges and gives seminars to graduate students in chemistry at local universities in Pennsylvania.

**Directions** (www.boordy.com). Boordy Vineyards is only 15 minutes north of the I-695, at 12820 Long Green Pike, Hydes, Md. From the west on 695, take exit 29 (Cromwell Bridge Rd.) and go left 2.9 mi. Bear sharp left over bridge onto Glen Arm Rd. Continue 3.2 mi. to stop. Turn left onto Long Green Pike and follow 2 mi. to Boordy's entrance on left. From the east on 695, take exit 31 North (Rt. 147 Carney) and go 4 mi. to Long Green Pike. Turn left and go 1.5 mi. to 4-way stop. Continue straight on Long Green Pike for 2 mi. to Boordy's entrance on left.

## Chemistry in the Library

Drs. Rose Pesce-Rodriguez and Sandy Young (chemists4fun@yahoo.com)

Chemistry in the Library is an outreach program sponsored by the Maryland Section (<http://membership.acs.org/M/Md/>) and the Army Research Laboratory (<http://www.arl.army.mil>). Here is the schedule for upcoming programs:

Hamilton Library: Saturday, May 22, 2004, "Food Chemistry."

Elkridge Library:

Saturday, April 17, 2004, "Chemistry of Crime (Part I)."

Saturday, July 10, 2004, "Food Chemistry."

We will also, once again, look into doing summer program sessions at the Hamilton Library on Friday or Saturday during the months of June, July, and August. Dates are yet to be confirmed with the librarian.

## April Historical Events in Chemistry

by Leopold May, The Catholic University of America, Washington, D.C.

- April 1, 1972 Julian Stone reported in *Applied Physics Letters* on a new type of fiber made of quartz and filled with tetrachloroethylene that may be able to carry light.
- April 4, 1923 Ira Remsen of JHU was awarded the first Priestley Medal.
- April 5, 1956 Marshall Gates and G. Tschudi announced synthesis of morphine.
- April 6, 1928 James D. Watson, born on this day, was a researcher on the double helix structure of the deoxyribonucleic acid (DNA) molecule. He shared the Nobel Prize in 1962 with Francis H. C. Crick and Maurice H. F. Wilkins for their discoveries concerning the molecular structure of nuclear acids and its significance for information transfer in living material.
- April 8, 1911 Birthdate of Melvin Calvin, who received the Nobel Prize in 1961 for his research in photosynthesis.
- April 10, 1900 Arnold O. Beckman, who developed the pH meter and founded Beckman Instruments in 1934, was born on this date.
- April 11, 1799 Humphry Davy discovered nitrous oxide, laughing gas.
- April 15, 1850 Birthdate of Sidney G. Thomas, who solved the problem of separating phosphorus from iron in the Bessemer Converter.
- April 16, 1921 Birthdate of Marie M. Daly, the first black woman to earn a PhD in chemistry in 1948 at Columbia University.
- April 18, 1838 P-E. Lecoqde Boisbaudran, born on this date, discovered gallium, dysprosium, and samarium.
- April 19, 1912 Birthdate of Glenn T. Seaborg, who co-discovered americum in 1944, berkelium in 1950, californium in 1950, curium in 1944, einsteinium in 1952, fermium in 1953, mendelevium in 1955, nobelium in 1958, plutonium in 1940, and element 106, 1974. He shared the Nobel Prize in 1951 for discoveries in transuranium elements with Edwin M. McMillan.
- April 22, 1858 Birthdate of Max K. E. L. Planck, who introduced the quantum theory in 1900 and was a researcher in thermodynamics. In 1918, he received a Nobel Prize in physics in recognition of the services he rendered to the advancement of physics by his discovery of energy quanta.
- April 25, 1900 Brithdate of Wolfgang Pauli, who discovered the exclusion principle and received the Nobel Prize in physics in 1945 for the discovery of the Exclusion Principle, also called the Pauli Principle.
- April 26, 1775 Antoine L. Lavoisier reported that heated mercury forms red calx, HgO, while the air is reduced in volume and no longer supports combustion. He heated red calx to liberate oxygen.
- April 29, 1904 Nashua incorporated as Nashua Card, Gummed & Coated Paper on this day.
- April 29, 1954 Champion International was incorporated on this date.

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### Upcoming Events:

May 21, 50-year membership luncheon at Belmont.

June 2, Remsen Award dinner meeting at JHU.

July 11, Section picnic at the Pataspco State Park.

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## Maryland Section has new website

Bookmark the section's updated website at [www.mdchem.org](http://www.mdchem.org) for all the latest information on the section's activities, planned events, and contact information for officers and committee members.

Also, don't forget, that the Chesapeake Chemist is available on the web as well as by email. For faster delivery, just provide the editor with your email address at [cakvt@hotmail.com](mailto:cakvt@hotmail.com).



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