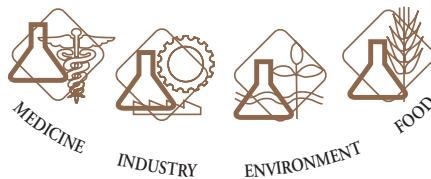


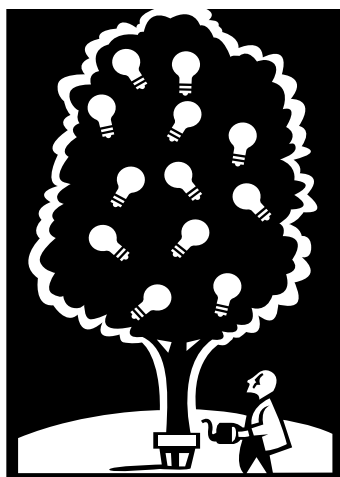


AMERICAN CHEMICAL SOCIETY
DIVISION OF ANALYTICAL CHEMISTRY
NEWSLETTER

ANALYTICAL CHEMISTRY SERVES HUMANITY
THE SCIENCE OF CHEMICAL MEASUREMENTS FOR



SPRING 2000 ISSUE



What is an NSF "Rotator"?

Jon. F. Parcher
Department of Chemistry
University of Mississippi

Elsewhere in this newsletter an announcement from Janet Osteryoung, the Director of the Chemistry Division of the NSF, appears concerning a temporary position as Program Officer in the Analytical and Surface Chemistry Program at the NSF.

This post is known in NSF parlance as a "rotator" position and it represents a somewhat unorthodox appointment. Because I held such a position in a former life, I am often asked questions, such as: What is a "rotator"? What are the duties of a rotator? Why is it only a temporary appointment? Should I apply for such a position? I personally feel very strongly that this position

is exceptionally important to the analytical chemistry community, and I would like to encourage qualified candidates to apply for the position. So I will try briefly to answer some of the questions cited above.

Ideally, a rotator works as a Program Officer teamed with a Program Director who is a permanent member of the NSF staff.

Continued on Page 13



All the World's a Sample

Thomas J. Wenzel
Department of Chemistry
Bates College

Award Address: J. Calvin Giddings
Award for Excellence in Education,
ACS Meeting, August 23, 1999.

I would like to thank the Dekker Foundation for its sponsorship of the award and acknowledge my own appreciation that it is named in honor of J. Calvin Giddings. Most people probably associate J. Calvin Giddings with the de-

velopment of field-flow fractionation and his significant contributions to our understanding of the theory of chromatographic separations. I first associate J. Calvin Giddings with a book he published in 1973 titled "Chemistry, Man, and Environmental Change." In my second year at Bates I began teaching a two-semester introductory course for non-science majors to fulfill general education science requirements. In the first semester I

wanted to develop fundamental chemical concepts as they related to the study of the environment. Today we have a number of texts that could be used for such a course, but in 1982 Giddings's book, even though getting dated on the environmental topics, was the only one out there that really developed chemistry when it discussed the environment. The book went out of print a few years after I started using it, but we did manage to find enough

Continued on Page 10



As announced in the last issue of this newsletter, we are no longer including the national meeting abstracts with this newsletter. They are available electronically through the ACS web site (www.acs.org). If you prefer a paper copy, please contact John Richardson, the Division secretary.

	S	M	T	W	T
Moscone Convention Center	P				
Chemical Microscopy	P	P			
Microchip-based Chemical Separations**					
Analytical Chemistry Awards			A		
General Posters	E				
I. M. Kolthoff Awards	E				
Biotechnology and the Analytical Chemist: Roles and Career Opportunities**		A			
Chromatography in the 21st Century		P			
Bioinformatics**			D		
Bioelectrochemistry and Biological Electron Transfer I* (INOR)			D	A	
Analytical Problems of the 21st Century			P		
Materials Science: New Products, New Challenges			P	A	
Genomic and Proteomic Technologies and Applications* (BIOT)				A	
Analytical Tools for the Production and Quality Control of Radiopharmaceuticals* (NUCL)				D	
Immunochemical Methods for the 21st Century: Immunochemistry Summit VIII*				D	D
Field Portable Instrumentation for Environmental Analysis					A

Legend

A = AM ; P = PM ; D = AM/PM ;

E = EVE ; DE = AM/PM/EVE ; PE = PM/EVE ;

* Cosponsored symposium, primary organizer(s) shown in parentheses.

** Primary organizer, cosponsored symposium.



The Division 1) Provides a forum for discussions of advances in Analytical Chemistry. 2) Increases awareness of the field on other scientists and the general public. 3) Encourages students to select Analytical Chemistry as their field of study. 4) Advises the ACS on matters related to Analytical Chemistry and 5) Offers analytical chemists opportunities for professional contacts.



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SECRETARY John Richardson
(717) 477-1774

JNRICH@ARK.SHIP.EDU

TREASURER Carolyn Ribes
CRIBES@DOW.COM



www.acs-analytical.duq.edu/analytical.html



Contributions to the next Newsletter should be sent not later than

May 1st, 2000 to:

Al Ribes

aribes@dow.com

DAC dinner at the San Francisco Meeting



Empress of China
838 Grant Avenue
San Francisco

Monday, March 27, 2000
Social Hour 6:30 pm
Dinner 7:30 pm

\$32

Order tickets when you pre-register!

Chair's Column



Ted Williams

There are few areas of chemistry that have seen as dramatic change as the area of analytical chemistry. This is evident when one views the symposia of the San Francisco National Meeting. Gone are the days in which there were limited offerings centered around electrochemistry, separation science, and spectroscopy as it applied to the development of new instruments. The San Francisco meeting will provide a wide range of presentations for the attendees. The Analytical Division is co-sponsoring programs in areas such as

radio pharmaceuticals, immunochemistry, and bioinformatics. If one wishes to get caught up on the new developments in our field, the San Francisco meeting is an ideal place to do so.

During the coming year it is our goal to promote increased interaction between industrial, government, and academic chemists. I hope that the local sections will follow the national lead and offer more interdisciplinary programs. Industrial and government groups have an opportunity to adopt a local col-

lege or university. They can provide speakers, field trips, and other opportunities for students.

A final concern that our section has to face, is how we will respond to the increased use of electronic journals. There are some persons who feel that hard copy should no longer be used and others who have very little interest in electronic journals. The executive committee welcomes your input into how to address these changes.

Feel free to e-mail me with your views on these issues.

Twenty Years of ALMA. What's Next?

Claude A. Lucchesi
Northwestern University

Let me start by comparing the challenges faced by lab managers when we launched ALMA in 1980. Then the challenges were to: Make measurements; solve problems; develop methods; train staff, and select and use instruments. Now as we approach the millennium, a manager must:

Align the lab with the business; implement TQM; validate methods and instruments; strive for continuous improvement; deal with regulatory constraints; initiate team approaches; coach and empower; seek to re-engineer the laboratory; champion the latest reorganization buzz word, and according to John Borchardt, improve the dimensions of workforce diversity.

No doubt about it. Lab manage-

ment was never simple. And it certainly is not getting any easier. This is the time for milestone anniversaries of interest to analytical chemists. Four have occurred within the last year: Chemical and Engineering News had its 75th anniversary; the Division of Analytical Chemistry, its 60th; and Pittcon, its 50th. And, of course, ALMA is celebrating 20 years. At 20, we are a Johnny-come-lately. Still

ALMA came along at just the right time—when corporations were beginning to reexamine the role of the analytical laboratories and at the beginning of wholesale downsizing—or should I say, dumbsizing.

A Newly Recognized Field

ALMA has provided a new and unique stage to communicate and exchange ideas about managing the chemical analysis laboratory. We have done this through our annual conference, our Bulletin, our journal, and through the network of managers we have developed. We have had the opportunity to share the joy of learning in what is becoming a newly recognized field of study—laboratory management. The idea that we have started a new field of study was pointed out to me by a colleague at the University of Chicago. Having an administrator at the U. of C. (Fred Stafford) tell me this, was very gratifying. We all share in this venture of creating and documenting a newly recognized endeavor—laboratory management. Having our journal abstracted by the ACS Chemical Abstracts, and having Lab Management as a topic at Pittcon on what appears to be a regular basis lends credibility to this declaration.

Thinking about the topics at Pittcon and at the ACS Division of Analytical Chemistry and elsewhere, we hear prognostications about more and better tools to carry out more and more difficult and sophisticated measurements. At the same time we hear about more “user friendly” instruments and more and more about automation, computerization, and robotics. But what we do *not* hear about is how these developments are going to get answers at a bearable cost. We do *not* hear about how these measurements will be man-

Division of Analytical 1999 Awardees

From left to right: M. Ramsey, T. Wenzel, W. Shults, J. Wang and M. Weaver at the Awards Symposium in New Orleans.



Heineman receives The 1999 Torber Bergman Medal

William R. Heineman was presented the Torber Bergman Medal at the 1999 Analysdagarna, held in Uppsala, Sweden, June 13. The medal was presented by Professor Bo Karlberg, Chair of the Analytical Section of the Swedish Chemical Society. The medal is given in honor of Torber Bergman (1735-1784) who was professor of chemistry of Uppsala University. Bergman, one of the foremost chemists in Europe of that time, made substantial contributions in analytical chemistry. The medal has been given every three years since its inception in 1967 in rec-

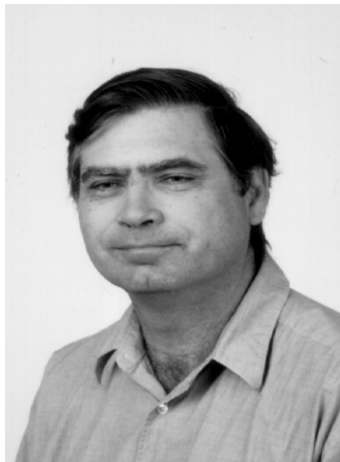
ognition of outstanding achievement in analytical chemistry. Professor Heineman is Distinguished Research Professor in the Department of Chemistry at the University of Cincinnati. He received a B.S. in chemistry from Texas Tech University in 1964 and a Ph.D. at the University of North Carolina at Chapel Hill where he worked with Professor Royce Murray. After spending two years at Hercules, Inc as a research chemist, he was a postdoc for two years with Professor Ted Kuwana at Case Western Reserve Univer-



sity and then at Ohio State U. He joined the faculty at the University of Cincinnati in 1972. Heineman was awarded the medal for his achievements in electroanalytical chemistry and bioanalytical chemistry. In his award address he discussed research on new strategies for chemical sensors.

Professor John Bruce Phillips (1947-1999)

John Bruce Phillips was born on November 6, 1947 in Pocatello, Idaho. He obtained a B.A. in chemistry from the University of California, Irvine, and conducted his graduate work at the University of Arizona under the direction of Professor Michael Burke. In 1977, he joined the Department of Chemistry and Biochemistry at Southern Illinois University at Carbondale (SIU-C). At the time of his death, June 12, 1999, he was full professor of chemistry and chairman of that department.



As a researcher, John extended his early interests in cross-correlation chromatography by developing concentration modulation, by which a continuous chemical signal is converted to concentration pulses that then are processed by a gas chromatograph. He applied it to microcolumn techniques, resulting in high-speed and efficient separations. In what may be his greatest achievement, John invented and developed comprehensive two-dimensional gas chromatography (2D-GC), by which effluent from a primary GC column is thermally modulated with the periodic release of preconcentrated analytes into a secondary GC column. The series of gas chromatograms produced by the second column, when stacked beside one another, form a two-dimensional separation.

In addition to his own research, John collaborated with others. In his work with concentration modulation, he collaborated extensively with NASA. His later work in 2D-GC led to collaboration with the Shell laboratories in The Neth-

erlands and research groups in Estonia. His 2D-GC work resulted in the establishment of the Zoex Corporation, a company dedicated to commercializing 2D-GC.

John was viewed as an excellent instructor by most graduate students, to whom he showed an unusual sense of vision and perspective. Among other things, he conveyed to them the importance of ion traps and micromachining techniques long before many other researchers recognized their importance.

John liked to organize his life differently than most of us. He treated research as an interesting adventure. He did not hesitate to investigate unusual ideas, and this approach resulted ultimately in him receiving international recognition for development of comprehensive 2D-GC. He will be missed by all of us.

Janusz Pawliszyn
University of Waterloo
Joe M. Davis
Southern Illinois University at Carbondale

New Web Site Makes Searching and Ordering ACS Books Easy and Less Expensive

ACS members can now order ACS Books online at a 25% discount and easily search for titles by author, title, keyword, subject, and symposia number simply by visiting www.oup-usa.org/acs.

The ACS Books home page immediately allows users to search the entire list of ACS Books by author, title, or keyword simply by clicking on the ACS logo. Or users can click on one of twelve ACS subject classifications and search for titles by subject. ACS symposia titles can be found by series number by clicking on Find a Book, then clicking on General Catalog Series, then ACS Symposium Series. Users then have to click on Back and search for the book by title or author to purchase at the 25% discount.

On symposia titles for which members qualify for a 40% discount (user is a member of the

sponsoring division), orders will have to be placed using a discount coupon in the division newsletter or emailed to: ixb@oup-usa.org.

Current additional features include full table of contents for most titles and an easy-to-use shopping basket for ordering. Future enhancements will include the ability to search and order all OUP chemistry and related titles at the 25% discount and an ACS Books Listserv, so subscribers can quickly learn about just published titles and special offers.

For more information about the ACS Books web site contact Mike Seiden at Oxford University Press, 198 Madison Avenue, NY, NY 10016; phone 212-726-6070 or email mes@oup-usa.org

Results of the 1999 DAC Officers' Elections

Chair-Elect
(10-1-99 to 9-30-00)
Bruce Chase

Councilor
(2000-2002)
Isiah Warner

Alt. Councilors
(2000-2002)
*Michelle Buchanan
and Karen Sentell*

Secretary
(2000-2001)
John Richardson

Subdivision of Chromatography and Separations Science

Open Meeting of the Subdivision of Chromatography and Separations Science

Following the Dal Nogare Award Symposium
at
the 2000 Pittsburgh Conference
in
New Orleans
Monday, March 13th, 2000

The executive committee will meet with any interested parties to discuss the performance, future activity, and agenda for the subdivision in the upcoming year. We encourage anyone interested in participating in subdivision activities to join us at this time. Items for the agenda may include:

Future Program Planning & Suggested Symposia.
Election Results and New Directions.
Amendment or Ratification of the Subdivision By-Laws regarding the schedule of election and the time of service of elected officers.
Suggested items for the DAC Newsletter.
New Activities and Initiatives for the Subdivision.
Annual Meeting of the Subdivision with a Reception.
Assessment of Member Concerns, Needs & Opinions.

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Secretary

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302-633-8902 fax
ron_majors@agilent.com (work)
RMajors@dplus.net (home)

Past Chair

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Miami Valley Laboratories
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513-627-2450
513-627-0655 fax
chester.tl@pg.com

Subdivision Election Results

Thanks to all of you who participated in this year's Subdivision election! Of the ~1100 ballots mailed to Subdivision members in October, 20% were returned to the Secretary to complete the election by 11/15/99.

The results are as follows:
Chair-Elect, Dick Henry; Secretary, Ron Majors; EC members (three in this election), John Dorsey, Vicki McGuffin and Larry Taylor.

They will join the ongoing members on 1/1/2000 to complete next year's Executive Committee.

Chair: Jon F. Parcher
(1999-2000)
Chair-Elect: Richard A. Henry
(2000)

Secretary: Ronald E. Majors
(2000-2001)

Past-Chairs

Thomas L. Chester
(1997-98 Chair)
John G. Nikelly
(1995-96 Chair)

Other Members

John G. Dorsey
(2000-2001)
Victoria L. McGuffin
(2000-2001)
Larry T. Taylor
(2000-2001)

Please start thinking about next year's election (Chair-Elect and other members), and contact Tom Chester if you are interested in running or in nominating other members for the slate - Nominations should be received by June 1, 2000.

Sally Stafford,
Subdivision Secretary

Subdivision Directory

Past Chair

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600 South 43rd Street
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215-895-1100 fax
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Executive Committee Members

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Victoria McGuffin

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517-353-1793 fax
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Larry Taylor

Department of Chemistry
Virginia Polytechnic Institute and
State University
Blacksburg, VA 24061
540-231-6680
540-231-3255 fax
ltaylor@vt.edu



Piece of cake!

How to join Dac

Send check payable to the Div. of Analytical Chemistry for the membership class:

ACS member \$14

NOT ACS member \$18

Student \$8

(include ACS member number or copy of student i.d. for discount)

Add \$2 for enrollment

in the Subdivision of Chromatography and Separations Chemistry



Include your name & address and mail to

John N. Richardson
Dept. Chemistry
Shippensburg University
Shippensburg, PA 17257
(717)477-1774
FAX (717)477-4048
JNRICH@ARK.SHIPEDU

Opportunities at



The Chemistry Division, NSF, is seeking temporary program officers for the Analytical and Surface Chemistry Program. Appointments may be made as either Visiting Scientist or on an Intergovernmental Personnel Act basis.

Applicants must have a PhD or equivalent experience in analytical chemistry or a closely related field and six years of successful research experience, research administration, or managerial experience beyond the PhD. A broad knowledge of this field

and of the research community in this area is essential. A broad knowledge of relevance of research in this area to significant problems in biology and environmental research is also essential. Experience with programs designed to build infrastructure and develop human resources is also highly desirable, as is administrative experience.

The Division also anticipates announcing a vacancy for a permanent program director in this area. Permanent appointments are restricted to US citizens.

For further information, please see the Divisional web site at <http://www.nsf.gov/chem>. or contact Janet Osteryoung or Donald Burland at 703-306-1840.

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Division Director
Division of Chemistry,
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703-306-1845(v), -0534(f)
josteryo@nsf.gov
<http://www.nsf.gov/chem>



Eastern Analytical Symposium

The final Eastern Analytical Symposium of the decade was held on November 14 to 19, 1999. Over 5,000 attendees viewed the latest in analytical chemistry equipment, supplies and information, displayed by over 250 exhibitors. More than 600 invited and contributed technical papers and posters were presented. Short courses, workshops, and tutorials, as well as a very active Employment Bureau, were also offered.

Next year's EAS will open in a new venue, the Atlantic City Convention Center. This location offers plenty of exhibit space, modern meeting rooms, and an exciting city for after-

hours entertainment. The upcoming conference is expected to fill 150,000 square feet of exhibit floor, and to attract about 6,000 registrants. EAS is the second largest meeting in the United States devoted to scientists in analytical and allied fields.

To become a part of the 2000 technical program, please submit a 200 to 250 word abstract of the proposed paper, indicating your preference for either oral or poster format, to the EAS Program Committee, PO Box 633, Montchanin, DE 19710-0633.

The deadline for submission of preliminary abstracts is March 31, 2000. The Retort, the official newsletter of the EAS, provides current information about the Symposium and is mailed approximately six times a year. To receive the Retort, contact EAS and ask to be added to the mailing list. Contact addresses are:

E-mail: easinfo@aol.com, EAS Hotline (302) 738-6218 and EAS Faxline(302) 738-5275. Additional information is available on the EAS web site at www.eas.org. The web site also provides on-line abstract submission.

Call For Nominations 2001 DAC Officers

The following Division offices are up for election in 2000



Chair-Elect

The Chair-Elect organizes the divisional programs for the fall 2001 and spring 2002 national ACS meetings and is the Program Chair for those meetings. He/she serves as Chair of the division from October 1, 2001 until September 30, 2002. As Immediate Past Chair, he/she serves as chair of the Nominations Committee and chair of the Financial Planning Committee in 2003. Bruce R. Chase will vacate the Chair-Elect position and rise to Chair in October 2000. Theodore R. Williams will become Immediate Past Chair.

Treasurer

The Treasurer manages the in-

come, investments, and expenditures of the division. He/she submits financial reports, at least annually, to the Executive Committee of the division, to the ACS, and to the federal government. The formal term of office is two years, January 1, 2001 to December 31, 2002, but it is our custom to allow the Treasurer to run unopposed for a second term, making it a four-year commitment. The current Treasurer, Carolyn Ribes, will end her first term on December 31, 1999 and will stand unopposed for a second term on the ballot.

Councilor (2) and Alternate Councilor (1)

The Councilors are our representatives to the national ACS organization. They attend the ACS Council meeting, vote for us on issues, and become involved in national ACS committees. Alternate Councilors serve

in place of absent Councilors. The term of office is three years, January 1, 2001 to December 31, 2003. The retiring Councilors are Roland F. Hirsch and Sarah C. Rutan. The retiring Alternate Councilor is Jon F. Parcher.

Please send nominations by April 1, 2000, to the Chair of the Nominations Committee:

J. Michael Ramsey
Oak Ridge Nat. Laboratory
P.O. Box 2008
Oak Ridge, TN 37831-6142
FAX (423) 574-8363
RAMSEYJM@ORNL.GOV

You will receive an election ballot in June.

*Please exercise
your right to
vote.*

Division of Analytical Chemistry Awards

Solicitation of Nominations. Deadline for Submission: September 1, 2000

We are seeking nominations for the following awards administered by the Division:

*ACS Division of Analytical Chemistry Award in Chemical Instrumentation Sponsored by the Dow Chemical Company Foundation.

*ACS Division of Analytical Chemistry J. Calvin Giddings Award for Excellence in Education Sponsored by the Dekker Foundation..

*ACS Division of Analytical Chemistry Award in Spectrochemical Analysis Sponsored by the Perkin-Elmer Corporation

*ACS Division of Analytical Chemistry Award in Electrochemistry Sponsored by the Electrochemical Instruments Division of EG&G Princeton Applied Research

*ACS Division of Analytical Chemistry Arthur F. Findeis Award for Achievements by a Young Analytical Scientist Sponsored by the Philip Morris Companies

*ACS Division of Analytical Chemistry Award for Distinguished Service in the Advancement of Analytical Chemistry Sponsored by Waters Corporation

Specific information on each of these Awards follows the general information on eligibility, deadlines, and nominating procedures.

These rules are extracted and paraphrased from the complete guidelines, which are available from the Division Chairman. However, they are sufficient to prepare a proper nomination for consideration by the appropriate award jury.

Eligibility

Eligibility is not restricted to members of the Division of Analytical Chemistry. Nominees for the Award for Excellence in Teaching must, however, have been a full-time faculty member at a college or university in the United States or Canada for at least five years at the time the award is presented. Nominating and seconding letters may be submitted by persons who are not members of the Division.

Deadlines

All nominations must be sent to the chairperson of the Division and must be received by September 1 of each year. The chairperson of the Division shall in turn transmit the nominations to the chairpersons of the appropriate juries.



For the 2001 Awards, nominations shall be sent no later than September 1, 2000 to:

Theodore R. Williams Department of Chemistry The College of Wooster Wooster, OH 44691 (330) 263-2115; FAX williams@acs.wooster.edu

For more information, please consult the DAC web site at: <http://www.acs-analytical.duq.edu/awdguide.htm>

Pacifichem 2000

December 14 - 19, 2000
Honolulu, Hawaii

International Chemical Congress of
Pacific Basin Societies 2000

www.acs.org/meetings/pacific2000

CALL FOR PAPERS

Chemists and chemical engineers are invited to submit papers to and to attend this meeting. Some 6,000 reports (oral and posters) on current research will be presented (see web site for list). An abstract with 150 words must be submitted per contributed paper. The abstract form is available from the web site. The deadline for abstracts will be April 3 (paper format) or April 14 (electronic format).

Pacifichem Congress Secretariat

American Chemical Society
1155 Sixteenth St, N W, Washington,
DC 20036, USA
Email: pacifichem@acs.org
Fax: 202-872-6128

The advance member registration fee will be \$340. Other details can be found on the web site and will be made available in the July 17 issue of C&EN.

TRAVEL GRANTS AVAILABLE FOR YOUNG CHEMISTRY SCHOLARS. There will be up to 40 grants of \$US1000 plus complimentary registration to assist with travel and attendance costs.

2000 American Microchemical Society Undergraduate Student Awards

The American Microchemical Society would like to announce undergraduate awards for students who have done research in any area of analytical chemistry. The awardees will receive \$1000, travel expenses up to \$250, and accommodation for



24th International Symposium on
High Performance Liquid Phase Separations and Related
Techniques

June 24-30, 2000 Seattle, Washington, USA

The Symposium Series, which alternates between the United States and Europe, is the premier meeting for the presentation and discussion of recent applications and new technological advances related to all aspects of separations science.

An all-inclusive symposium for Separations Science offering scientists, engineers, chemists, managers, technicians and academicians a single site for exposure to current trends in fun-

<http://www.stlcdg.org/hplc2000/>



The 8th International Meeting on Chemical Sensors (IMCS 2000) will take place in Basel, Switzerland, 2-5 July 2000.

The conference will cover the physics, materials science, chemistry, development and

applications of chemical sensors.

For full details see www.elsevier.nl/locate/imcs2000 or contact p.orme@dial.pipex.com

two nights to receive the awards at the Eastern Analytical Symposium (EAS) on October 29 - November 3, 2000. Applications should include a cover letter, a 2 page summary of analytical research conducted by the student written in his/her own words, at least three letters of recommendation (one must be from a research director), a one page summary of career goals, and official transcripts from undergraduate institution(s). More details and a list of former awardees is available at [//chemweb.chem.uconn.edu/](http://chemweb.chem.uconn.edu/)

microchem/. The deadline for applications is March 15, 2000. The awardee is expected to present their work at EAS as a poster at the Undergraduate Research Poster Session. Three copies of all materials, including letters and transcripts, should be sent to Dr. David J. Butcher, Department of Chemistry and Physics, Western Carolina University, Cullowhee, NC 28723 Phone: 828 227-3683; Fax: 828 227-7647; email: butcher@wpoff.wcu.edu; <http://www3.wcu.edu/~butcher/>.

NEXT NATIONAL ACS MEETING

WASHINGTON, D.C.
(AUGUST 20-25, 2000)

Abstract Deadline:
April 1, 2000.

ACS Division of Analytical
Chemistry Awards Symposium.

Distinguished Service in the
Advancement of Analytical
Chemistry.

Frontiers in

Analytical Education.
Chemical Instrumentation.
Spectrochemical Analysis
Electrochemistry



Cincinnati Section ACS
32nd Central Regional Meeting
May 16-19, 2000
Covington, KY USA.

www.cmacs2000.org

Symposia are being organized in the areas of supercritical fluids, free radicals in biological systems, combinatorial chemistry, chemical education for the year 2000, green processes and azides in synthesis. Special programs will also be provided for high school teachers, chemical technicians and minorities. A vendors exhibit and employment clearing house are planned. Four regional awards in the areas of polymers, pharmaceuticals, environmental chemistry and chemical engineering as well as an Outstanding Regional High School Teachers award will be presented at the meeting. At present, a laboratory safety workshop is planned but expectations are to add other courses of high interest as well.

WCC Establishes Overcoming Challenges Award

The Women Chemists Committee of the American Chemical Society has established a new award designed to recognize a woman from a two-year or four-year institution for her efforts in overcoming hardship to achieve success in chemistry. The award consists of a plaque, a monetary award of \$250, and up to \$500 in travel expenses to the fall ACS national meeting. The recipient will be recognized at the WCC Luncheon on Tuesday afternoon at that meeting.

Criteria

* Awardee must be a woman currently enrolled in a two year or four year chemistry-related program at a college or university, and must have satisfactorily completed one semester of college level chemistry.

* Applicants must demonstrate that they have overcome hardships (economic, personal, or academic) in pursuit of their education in order to be considered for the award.

* The jury will consider 4 categories: improvement, initiative, successes, and grades from all previous semesters (the jury will

consider current grades and not cumulative grade point average in making their decision).

Award Administration

* Applicants must submit a letter requesting award, 1 (one) letter of recommendation, and school transcripts. The request should contain nominee name, address, telephone number, and email address as well as explain the hardships the student has overcome and her current successes. In addition, she should submit a program description from the official college/university bulletin for her intended major.

Submissions should be sent to: Women Chemists Committee, American Chemical Society, 1155 16th Street, NW, Washington DC 20036.

Nominations must be received by May 1, 2000. The first award will be given at the ACS National Meeting in Washington, DC, on Tuesday, August 22, 2000, at the Women Chemists Luncheon.

ALMA *Continued from page 7*

aged!! As analytical options increase, good management becomes more critical. The study and communication of how to manage these options is what ALMA brings to the party. We are filling this expanding need in a scholarly and vigorous way by helping managers achieve an efficacious mix of technical and executive skills.

This also is a good time to pause to take some credit for what we analytical chemists contribute to

Society. Through the measurements and problem-solving activities in the laboratories we manage, we have a profound effect on the performance and cost of manufactured goods, on processes, and on the quality of life as related to environmental, medical, and forensic issues. In the university laboratories where we deal primarily with the training of future scientists and the production of new knowledge, our contribution is indirect but as real as the publications that

M. Kolthoff Awards

The Award consists of \$500 to cover travel expenses to the 2000 Spring ACS Meeting in San Francisco and present a poster at the Poster Session of the Division of Analytical Chemistry. This year we are able to award nine outstanding students.

Awardees: Kimberly Deaton, Carthage College; John Eschelbach, Denison University; Steven Fairchild, Idaho State University; Annette Moser, University of Nebraska at Kearney; Jacqueline Murray, Fort Lewis College; Andrea Osisek, Shippensburg University; Corey Stephenson, University of Minnesota; Christopher Tiftickjian, Angelo State University; and Jolene Thurston, Bates College.

Honorable Mention: Aetna Wun; Nathan Wittenberg; Rollin Jackson Bryan Jackson, and Christopher Hunt.

come out of our institutions. In our service functions in industry and government as well as in academia, we are an enabling group, much as is the field of chemistry itself, which powers advances in related areas.

Thanking ALMA

ALMA has been a wonderful experience. Most of all, I personally, am grateful for the close friendships and for the affection we share. Through the Workshop put together for our annual Conferences, and through our publications, ALMA has provided the opportunity to visit many parts of the world: China, India, Australia, and South America as well as Europe. Next year, very likely we will have the chance to bring our style of Lab Management to Africa (Kenya, Tanzania, or South Africa). In addition, ALMA has provided the opportunity to work with

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NSF's Antarctica program, the World Bank lab directors program in Shanghai, and currently, with an organization known as IOCD which stands for International Organization for Chemistry in Developing Countries. IOCD was created a year after ALMA, in 1981, in Paris, by three Nobel Laureates and other distinguished scientists.

What About the Future?

Now, let me step back to our very first Conference. When ALMA was launched as ULMA (University Laboratory Managers Association), we academics wanted to achieve a voice in the funding agencies like NSF, NIH, DOE as well as to develop a network to discuss managing and operating our labs. We accomplished this within a couple of years. So ULMA was successful. However, within a few years, our organization went

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ALMA *Continued from page 9*

from about 90% academic lab directors to 90% industrial managers. From ULMA to ALMA.

But in many ways, we have never gotten over being an academic organization. For example, we still have unrealistically low membership fees and registration fees. So my first suggestion is that we increase these fees with the idea of growing an endowment fund. Among other things, an endowment fund may permit us to eventually publish our own journal, and perhaps, even to have an Executive Director as well as the present Executive Secretary. We need a qualified technical person as part of our staff to assist the Board in developing *and* carrying out a comprehensive strategic plan. Most of all, we need a technically savvy person to promote and manage membership growth and retention. We need sustained publicity, and we need solicitation of vendors to contribute to our endowment fund.

Other future areas should include establishing ALMA groups throughout North America and overseas. Going global has already begun. We had an exchange program with China for four years, and last year, through the leadership of Tom Lyttle, we had the first EuroALMA Conference in Norway. We will have a second conference in Europe next year. We regularly have conferees from outside the US. Argentina, Denmark, the Netherlands, and Canada are represented here tonight. Perhaps we should have ALMA Conferences overseas in even years and in the US in odd years.

In North America, we should start local chapters. Actually, in a way, there already is a group in Houston, but it is not affiliated with ALMA. The Houston

Continued on page 12



"...chemists solve problems...but "All the World's a Problem" sounded a bit too negative for the title of my talk..."

copies from suppliers throughout the country to make it through the six years I taught the course. So a lot of my students learned quite a bit of chemistry through J. Calvin Giddings work.

I want to thank those of you who nominated me and wrote supporting letters on my behalf.

All the World's a Sample *Continued from page 1*

I want to thank the journal Analytical Chemistry for having A-pages. As analytical chemists we are fortunate that we can publish articles on curricular innovations in the premier journal in our field. I believe that is unique within chemistry (and is just another reason why analytical chemists are so special). I know I would not be standing here right now if it was not for my 1995 article in the A-pages of Analytical Chemistry. I would like to thank Ted Kuwana for taking the lead on a curricular reform effort in analytical chemistry. Ted's efforts have provided a national forum for me and others to talk about alternative ways of teaching analytical chemistry.

Finally, I would like to thank Bob Sievers, my Ph.D. thesis advisor at the University of Colorado. I learned so many

things from Bob and from working in his lab, that it would be impossible to describe them all. He showed me that it was possible to consistently achieve at a high level on an exceptionally crowded plate of professional and personal activities; and he continues to inspire me at those times when my own schedule makes me feel like I am swimming over my head. He was an unfailing supporter of my pursuit of a position at an undergraduate institution. I should add, though, that his support only came after he got over his initial shock that I was not going to pursue a position at a research university, and after we had a long conversation about the reasons for my decision. I remember the day Bob came into my lab and asked me if I had applied for the position at Oberlin. When I said I had not, he replied that I had to. When I asked why?... *Continued on page 11*



All the World's a Sample

Continued from page 10

and since eventually in solving problems analytical chemists do get around to analyzing samples, I decided instead on "All the World's a Sample".

Education of undergraduates is the primary mission at Bates and I went there with a stated interest in developing innovative chemistry courses and laboratories, even though at the time I had no idea what that might entail. (I also noticed in looking back at my cover letter that, at the time, I did not know how to spell innovation.)

This award suggests that I have met some measure of success in that regard, and the recognition means so much to me. But I have to admit that I am a bit ambivalent about giving a talk that might be viewed as "here's how to be an effective educator." What I have discovered is that the longer I teach, the less certain I feel that I know what I am doing, and the less expert I feel on the topic of teaching. At this rate, in a few years I guess I will be in a total state of confusion. Teaching was easy when I started. All I had to do was give organized lectures spiced with enthusiasm and humor, assign reading and homework assignments, use modifications of standard lab experiments gathered from a variety of sources and I was set. In other words, I taught the same way I was taught. (And that approach has a lot of value). There are many occasions when we must relay information in a lecture format. But then I had this realization (to borrow a more modern phrase) that "You know, it's the learning stupid", and teaching suddenly became a whole lot more difficult. I found that far too often I experienced students who did not learn the material even though I had taught it. I also observed that my students seemed

to learn things much better in the context of research than in the context of courses, even when simultaneously doing both with me. Material learned in courses seemed to be forgotten a short time later, whereas months later students would speak lucidly about a point that had come up during the course of their research. What did I want my students to learn? I learned a lot of chemistry (i.e., content) during my undergraduate and thesis work (and reviewers of manuscripts and proposals keep reminding me that I have not learned enough yet - so content is necessary), but I also learned much more than content, espe-



cially during my thesis work. In doing research I learned how to actually do science, how to solve scientific problems, how to create knowledge. I became convinced that somehow my courses needed to go much further than the content and lab skills that were their primary emphasis. Students needed to do science; in other words to experience real scientific investigation and problem-solving first hand, and do it in interaction with, rather than isolation from, other students.

I bet everyone here who is a chemist has experienced this conversation stopper; "What do you do for a living?" Why is it that telling someone I am a chemist causes so many people

to stop talking or relay some horror story from their own educational experience?

When I first got my position at Bates, my wife Joan had a friend in Colorado who grew up in the Lewiston, Maine area. It turned out that four generations of people in her family had gone to Bates. In the fall of my first year her family had gathered for a reunion at their camp in Maine. My wife and I were invited since everyone was thrilled that a member of the family was friends with a new Bates professor. But the first question when I got out of the car was "what do you teach?". When I responded "chemistry", four generations of people groaned. It was still okay for me to be there, but it did seem as if my stature had diminished somewhat. As analytical chemists, though, we have a distinct advantage in responding to this question. Just mention that you are an analytical chemist, someone who delves into the processes and techniques for analyzing samples from the environment, living systems, water, food, etc., for their chemical constituents, and people's interest is revived. It seems that everyone has an analysis that interests them: the level of cholesterol in their blood; the quality of their drinking water; additives in the food they eat; drug testing of athletes; was it really OJ's blood?

The list goes on and on. To some level, everyone is intrigued with analytical chemistry. When it comes to our courses the possibilities are endless. It should not take much imagination to have our students analyze samples that actually interest them. But in "traditional" analytical labs, do students analyze interesting samples, do they conduct investigations, do they solve real problems? I know when I look

he said because he had already sent a letter of recommendation on my behalf. That lesson in support has helped me over and over again in conversations with my own students. As much as I might give advice and make recommendations, I learned that I have to support my student's decisions whether they accept my advice or not.

Bob also taught me that you should not be bashful about telling others about your work, because if you thought it was good, others might benefit as well from hearing about it. Its interesting that very few people from undergraduate institutions, the place where curricular innovations ought to, and do, occur, have received this award. All too often I suspect its because the faculty at those institutions feel its enough to share the good things with only their students. I am glad I learned otherwise because the professional interactions, many of which have involved people in this room, have enriched me tremendously.

I also owe an explanation to Cindy Larive, a valued colleague. In our efforts to continue a national dialogue on the undergraduate analytical curriculum, Cindy has made the point that analytical chemists do not analyze samples, they solve problems. But "All the World's a Problem" sounded a bit too negative for the title of my talk,

All the World's a Sample

Continued from page 11

back at the experiments in my early lab manuals they do not look all that interesting to an undergraduate. They are not that challenging. They are certainly not ambitious. There is no investigation. There is no problem solving as I would define it. I am convinced that the semester-long, small-group projects I now have students undertake develop what we would consider basic analytical lab skills. In addition, though, they also develop the entire process of analytical chemistry. Students undertake an investigation and they encounter problems with answers that are either not obvious or not known. They gain experience at working as part of a team, and they develop oral and written communication skills. Many of these same skills are further developed through collaborative group learning in the class.

Examples of projects that students have undertaken in my

“...my students seemed to learn things much better in the context of research than in the context of courses...”

course include the analysis of: -benzene and toluene in air trihalo-methanes in drinking water -chloride, nitrate, and sulfate ions in soil -the amino acid content of foods such as milk, popcorn, and beer (the latter two representing two of the major food groups of undergraduate college students) -caffeine, theophylline, and theobromine in chocolate -polycyclic aromatic hydrocarbons in hamburgers, oysters, creosote, and diesel exhaust -a thematic lab in which the students all analyzed

different constituents of coffee -heavy metals in samples such as sludges, soil, paint, and wine -and DNA restriction fragment analysis using capillary electrophoresis.

I have to imagine that at least one of those projects sounded interesting to each of you? What could be better than teaching a lab in which you as the instructor would enjoy doing and learning the results of the experiments?

A concern you might raise is “suppose the analysis fails?”. We have all probably experienced failure in a conventional lab. A procedure or instrument that has worked numerous times before is supposed to work. Students drum their fingers on the lab bench while you and/or a TA try to get things working. In labs that are supposed to compartmentalize into three-, four-, or six- hour blocks, precious time is being squandered or, reluctantly, overtime will be necessary to get the data. Investigative projects remove that because the goal is not completing the analysis, although that is certainly desirable.

An excellent example involves a group of students who tried to use our brand new capillary electrophoresis instrument this past year for DNA restriction fragment analysis; a technique they now refer to as crapillary electrophoresis. They were beset with one problem after another and never did get a reproducible analysis. But over the semester they were on the phone with technical support from the manufacturer, set out a series of experiments to systematically eliminate certain possibilities, went back to the literature to find alternative columns and proce-

“...Just mention that you are an analytical chemist, and people's interest is revived... It seems that everyone has an analysis that interests them...”

dures, some of which they then explored. In reality, they did more science and learned more than anyone else in the course, even though they did not successfully complete a reproducible analysis. You do have to be careful, though. I made a point throughout the term to remind them that in the context of our goals for learning, their “failed” project was actually a tremendous success in their preparation as scientists.

In closing, I would like to urge instructors to experiment in their courses. We readily experiment in our research; we ought to do the same with our teaching. Wing it a little. Try some new samples or methods that you do not know much about. Make the students partially responsible for educating you about things they are learning from the literature. Work with students as partners in a team effort. Show them that you do not know everything, but are eager to learn new things. Then, by example, show them how to solve problems, show them how to learn. I often hear that the ultimate goal is imparting in undergraduates the ability and desire to be a lifelong learner. I do believe that the projects and group learning that I have incorporated into my courses help students better achieve such goal.

Thank you so much for indulging me today.

ALMA

Continued from page 10

organization is called the Houston Area Lab Managers Group. Guess who is very active in that group—Wayne Collins. As Wayne told me, the group was organized in 1996 and meets three times a year at the plants of its members. They have about 25 attendees at each meeting.

One of the challenges of ALMA is to figure out how to serve groups such as this. I can easily see that a local group could be organized in the Chicago area. Most likely a group could be organized in the New Jersey area. And my guess is one could be started in Winnipeg, Canada. These local chapters would have to receive benefits of membership without necessarily coming to our annual conference.

We should arrange to offer discounts for Newsletters of interest to our members—say, the LIMSletter and the Analytical Consumer. Of course, our members already receive a sizable discount for Managing the Modern Laboratory.

I am happy to relate that Wayne Collins, as our new President, is working on a comprehensive strategic plan to “define our value proposition—communication, training, and recognition.” I applaud this. With Wayne’s leadership as President and with the help of a vigorous and innovative President-Elect, I believe that ALMA will achieve more in the next two years than she has in the last 20. So.....let us fill our glasses and make a toast to ALMA on her 20th birthday.

What is an NSF “Rotator”?

Continued from page 1

Some of the most articulate, knowledgeable and enthusiastic advocates for analytical chemistry have held this permanent position in the past. I am referring, of course, to Fred Findeis and Henry Blount. This team’s duties involve the management of all of the proposals submitted to the Analytical and Surface Chemistry Program. The concept of teaming a temporary rotator with a permanent NSF staff member is unique and presents both opportunities and challenges. The result can be an infusion of new ideas, novel ways of doing things, and innovative approaches to the day-to-day operations of the NSF. This is the role of the rotator! It is also the rationale for a temporary appointment.

The duties involve primarily the management of proposals. Assignment of reviewers is probably the most important and intellectually challenging component of the proposal management process. Coordination with other Programs within the Chemistry Division or even with other Divisions within the NSF in the selection of reviewers is often desirable. Thus, a wide knowledge of science in general, not just analytical chemistry or even chemistry, is required for this process. The review process must be carefully monitored to ensure a speedy and fair evaluation of each proposal. When adequate reviews have been received, the Program Officer makes a written evaluation of the proposal and reviews along with a recommendation for final action. The Program team then makes a final recommendation to the Division Director.

One of the most reassuring things that I encountered early on in the position was the absolutely crucial role of the reviewers in the proposal process. Sometimes it is suggested that some remote Program Officer in Washington made the decision



on the funding of a particular proposal. Indeed, the Program Officer has a role; however, the reviewers have far more influence on the fate of the proposal than any Program Officer. If you have ever written a review of an NSF proposal and then wondered if anyone ever read it, the answer is yes. I was often amazed at the quality and insight of the reviews received for even obscure or poorly written proposals. The reviewers are not obligated to the NSF and their time is every bit as valuable as that of the proposal’s author. The peer review system is often criticized; however, if you want to see the system work at its best, the NSF Chemistry Division would serve as an excellent, if not always perfect, model.

There are, however, other aspects to the position that do not appear in the formal job descrip-

tion. Undoubtedly, the most important of these is the role that a Program Officer plays as a mentor to young investigators, under-represented minorities, and others trying to “get into the system” for the first time. As a university professor, I enjoy mentoring but at a local level. The NSF position provides similar opportunities at a national level. This was one of the most rewarding aspects of the position to me personally. Speaking with investigators about their research or young people about how to structure a proposal for ensured success is enjoyable if somewhat challenging, especially the part about “ensured success”. Walking around a national ACS meeting or Pittcon with ‘National Science Foundation’ written on your badge can be a very interesting experience to say the least.

Another very positive facet of the work is the interaction with the extraordinary and excellent staff and other rotators in the Chemistry Division of the NSF. Acquaintance with the top chemists in the nation is another benefit of the position. The general sense of being able to exert a significant influence in the field of analytical chemistry gives a meaning to the job that is not available in most other positions. When you call someone and leave a message that you are calling from the NSF, it is amazing how fast the call is returned.

Finally, of course, there are some negatives to the position. First of all, working for the federal government has certain charms all of its own. The position is

full-time for at least one year and involves a displacement to Arlington, VA for an extended period of time. The NSF does allow time for research at your home institution; however, your primary focus will be on NSF-related activities. Then, obviously, there are the declination calls. This is what I am asked about most often. These calls are not fun, but neither are they completely onerous. Most applicants are disappointed but reasonable. Fortunately, the Program Officer also gets to make a few award calls and these help offset some of the less pleasant calls. Finally, the position is certainly high-profile and intense if nothing else. The time spent at the NSF will influence your life and your science for the rest of your career.

In summary, I would strongly recommend the position to anyone who feels qualified to carry out the duties, as well as reap the benefits, of the position. It will be an experience that you will not soon forget, I guarantee!

A Definition of Analytical Chemistry

Have you read the definition of Analytical Chemistry recently added to the Division’s web site? Tell us what you think. Is it complete?

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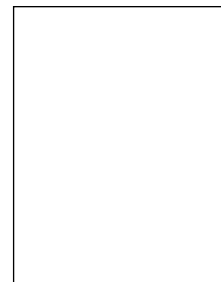
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September 22-30 2000 Opryland, TN
October 5-12 2001 Detroit, MI

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