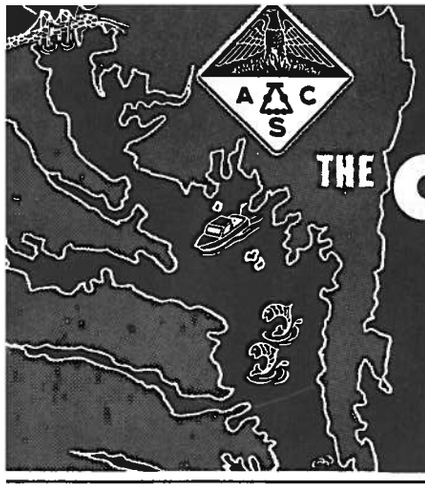


THE CHESAPEAKE CHEMIST

MARYLAND SECTION
AMERICAN CHEMICAL SOCIETY

VOL. XLI NOVEMBER, 1985 NUMBER 8

THE EDITOR NOTES

Our September meeting at the W. R. Grace & Co. Research Center, featuring the traditional melt-in-your-mouth sauerbraten, was a most enjoyable event. Thanks are due W. R. Grace & Co. for sponsoring the social hour and special thanks to Grant Edwards for handling the arrangements.

The previously unidentified September speaker was Scott Ramsey of W. R. Grace & Co. who spoke on "The New Biochemistry".

To complement John Pavlik's talk, Fisher Scientific presented each attendee with two large color prints of works in the Fisher collection as well as framed prints to our honored guests and to three lottery winners.

This issue of *The Chesapeake Chemist* features the U. S. Army's chemical activities at Edgewood, and this month's meeting will be held at Edgewood, where the beef and burgundy dinner at the Officers' Club is always excellent.

Having mentioned beef and burgundy and sauerbraten, we must note that the College of Notre Dame always serves an excellent dinner as well. Whether or not our speakers excite you, you can't afford to miss the food.

THE JOHNS HOPKINS UNIVERSITY

Chemistry Department Colloquium Schedule

Colloquia are held at 4:15 pm in Remsen Hall Room 221 on the Homewood Campus of The Johns Hopkins University. Refreshments are served at 4:00 pm.

Day and Date	*Speaker and Affiliation*	*Title or Field*
Tuesday November 5, 1985	Dr. Alan S. Pine National Bureau of Standards	"Infrared Spectra of Hydrogen-bonded and van der Waals Complexes"
Tuesday November 12, 1985	Dr. MacRae Maxfield Allied Corporation	"Electrochemistry of Polyacetylene"
Tuesday November 19, 1985	Prof. Richard E. Smalley Chemistry Department Rice University	"Supersonic Cluster Beams and the Emerging Molecular Surface Science"
Tuesday November 26, 1985	Prof. Jacqueline K. Barton Chemistry Department Columbia University	"Chiral Metal Complexes: Recognition and Modification of DNA"
Tuesday December 3, 1985	Prof. Neville Kallenbach Biology Department University of Pennsylvania	"DNA Junctions"

TRISOCIETY SYMPOSIUM ON NEW TECHNOLOGIES AND CHEMICAL INFORMATION

A Tri-Society Symposium on "New Technologies and Chemical Information: 1986", organized by the ACS Division of Chemical Information, the American Society for Information Science, and the Special Libraries Association, will be held on Monday, April 14, 1986, in New York in conjunction with the ACS National Meeting. The new technologies that will be highlighted include optical storage, artificial intelligence, and telecommunications. The impact of new technologies on chemical-information processing and the human factors involved will also be discussed.

THE CHESAPEAKE CHEMIST

VOL. XLI **NOVEMBER, 1985** **NUMBER 8**

The Chesapeake Chemist is published monthly September through May by the Maryland Section of the American Chemical Society. Address editorial comments to the Editor. Send advertising copy and inquiries to the Business Manager. The Maryland Section is not responsible for opinions expressed herein. Editorials express the opinions only of their authors. The Editor is responsible for all unsigned material.

EDGEWOOD ARSENAL: THE CENTER FOR ARMY CHEMICAL RESEARCH AND DEVELOPMENT*

by Jeffrey K. Smart

In August 1914, World War I shattered the European continent. Less than a year later, the world was shocked by a terrible new weapon. On 22 April 1915, German forces first used asphyxiating gas against French troops near Ypres, Belgium. This attack was soon followed by additional attacks as both the French and British responded in kind.

Although neutral at the time, the United States was totally unprepared for chemical warfare. When the United States entered the war in April 1917, the War Department finally began to realize that they too would have to prepare American troops for this new type of warfare. As part of this preparation, the Ordnance Department was assigned the responsibility for providing retaliatory gas artillery shells. Unfortunately, there were no facilities in the United States capable of filling gas artillery shells, therefore, the Ordnance Department sought a location to build a gas shell filling plant.

The Ordnance Department's first choice for the site was Kent Island, on the eastern shore of the Chesapeake Bay. Congress, however, failed to approve this plan. As a second choice, the Ordnance Corps chose Gunpowder Neck, a small peninsula on the western shore between the Bush and Gunpowder Rivers. The Ordnance Corps liked the site because it was an isolated district, it was near a port, and it was close to railroad transportation.

The tranquil life of the Gunpowder Neck residents ended in October 1917 when they were told to leave their land with little advance notice. However, when the Army sought plans for a gas shell filling plant, there were none to be found in the United States. Captain Edwin M. Chance, both a chemist and an engineer, was assigned the responsibility of designing, constructing, and operating a shell filling plant. Captain Chance first visited a French shell filling plant, but rejected their system due to safety and quality problems. Instead, he returned to the United States and visited commercial bottling companies. These plants used a process that was very similar to the one needed to fill gas artillery shells. After visiting milk, beer, and carbonated bottling plants, Captain Chance designed the first shell filling plant for the Army's new Gunpowder Reservation.

In November 1917, the Army began construction of the filling plant in a wheat field. The plant consisted of a central powerhouse with four filling buildings radiating out from the powerhouse at 90 degree angles to each other. This protected each wing from an accident in another wing. Other gas manufacturing and shell filling plants were constructed around this initial plant and by 1918 there were two more plants completed and seven in progress. On 4 May 1918, Gunpowder Reservation was renamed Edgewood Arsenal and a month later transferred to the newly created Chemical Warfare Service. By the end of World War I, Edgewood Arsenal consisted of 558 buildings with 14.83 miles of improved highways, 21 miles of standard gauge railroad, 15 miles of narrow gauge railroad, and two different water systems. A peak strength of 8,542 civilians and 7,181 military were stationed at the post.

After the close of World War I, 97 percent of the Chemical Warfare Service was demobilized. Edgewood Arsenal was placed on a peacetime basis and the plants gradually fell into a state of disuse. Because of a change in U.S. policy, toxic gas production ceased in 1922 and Edgewood Arsenal was primarily used to manufacture gas masks and as a training center for chemical warfare. In 1922, due to the demobilization, an unused portion of Edgewood Arsenal was redesignated Fort Hoyle and assigned to the Field Artillery. This separate entity, named after Brigadier General Eli Hoyle of the 6th Field Artillery who died in 1921, lasted to 1940 when the Fort was merged back into Edgewood Arsenal.

One week after the outbreak of World War II in Europe, President Franklin Roosevelt declared a national emergency and Congress approved funding for the rehabilitation and startup of Edgewood Arsenal to a wartime status. Realizing that this war could also see the introduction of chemical warfare, the Chemical Warfare Service prepared for just such a possibility and Edgewood Arsenal became the center of these activities. Among the changes was a new laboratory building in 1942. In May 1942, Edgewood Arsenal was redesignated the Chemical Warfare Center to better reflect its multi-faceted mission of production, procurement, depot, training, testing, and storage. During World War II, peak strength soared to 10,710 civilian and 3,420 military. Throughout the war, however, there continued to be a shortage of workers. By 1944, 40 percent of the workforce were women and 45 percent were black. This reflected a significant change from pre-war personnel. Even then, the plants had a shortage of manpower and 700 German POWs were brought in to handle support functions. Although chemical warfare did not occur as originally feared, Edgewood Arsenal contributed to the war effort by providing research and development support in the fields of incendiary bombs, mortars, flame throwers, and smoke screening.

After the end of World War II, the continuing need for chemical warfare preparedness was recognized by the creation of the Army Chemical Corps in August 1946 and the renaming of the Chemical Warfare Center to the Army Chemical Center in June 1947. During the Korean War, the Center contributed to the war effort by providing research and development support in the areas of incendiaries, flamethrowers, smoke, and phosphorus grenades among other items. After the war, the Center continued to provide research and development support to the Army. During the 1950s, the Center developed a new protective mask and more effective riot control agents. During the 1960s, the Center conducted research on the use of plastics and vinyl, jet fighter smoke screens, and even hallucinogenic drugs as some of the more exotic subjects.

In 1962, a major Army reorganization discontinued the Chemical Corps as a separate command and in 1963 the Center reverted to its former name of Edgewood Arsenal. Edgewood Arsenal supported the Vietnam War primarily in the fields of riot control agents, smoke, incendiary weapons, and protective devices. In a 1966 reorganization, Edgewood Arsenal was designated the Army's commodity center for all chemical research and development.

In 1971, the Army discontinued Edgewood Arsenal as an installation, but continued the name for the command. The property and installation support functions were merged with Aberdeen Proving Ground. The original post area was redesignated Edgewood Area, Aberdeen Proving Ground. In July 1977, the research, engineering, and administrative aspects of Edgewood Arsenal were redesignated the Chemical Systems Laboratory. This organization, in turn, became the current Chemical Research & Development Center in July 1983.

Although Edgewood Arsenal changed its name several times in the past, the mission always remained the same - to develop the best possible defensive systems to protect American military forces and to provide them the proper equipment and materiel to perform a military mission in a toxic environment. The Chemical Research & Development Center carries on that same mission and the proud tradition of Edgewood Arsenal by providing today's leaders the decisive edge in chemical research and development.

---

* An earlier version of this article entitled "The Birth of Edgewood Arsenal" appeared in the *APG NEWS* June 26, 1985.

JEFFREY L. STURCHIO

Jeff Sturchio is Associate Director of the Center for History of Chemistry and Adjunct Assistant Professor of History and Sociology of Science at the University of Pennsylvania. He has an A.B. in history from Princeton University (where he studied in the Program in History and Philosophy of Science) and a Ph.D. in history and sociology of science from Penn. Before returning to Penn in the fall of 1984, Dr. Sturchio taught in the Humanities Department at the New Jersey Institute of Technology. He has also held a postdoctoral fellowship at the Smithsonian Institution's National Museum of American History and visiting appointments at the Thomas A. Edison Papers and the Department of History, Rutgers University.

Dr. Sturchio's research interests lie in the history of chemistry and chemical technology. He has published *Chemistry in America, 1876-1976: Historical Indicators* (Reidel, 1985), written with A. Thackray, P. T. Carroll, and R. F. Bud, and recently edited and contributed to *Corporate History and the Chemical Industries: A Resource Guide* (CHOC, 1985). His current research and writing concentrate on two areas: the history of research & development in the American chemical industry before World War II; and the relations of science, technology, and urban culture in late 19th-century America.

Dr. Sturchio is a member of the Council of the History of Science Society. He is secretary of the Pelicans, the SHOT interest group for the history of chemical technology, and was chairman of the SHOT Program Committee in 1984. He has edited *CHOC News* since 1982.

JOSEPH PRIESTLEY: ENLIGHTENMENT CHEMIST

Joseph Priestley (1733-1804) is commonly viewed today as a brilliant chemist--the discoverer of oxygen and seven other common gases, the inventor of soda water. But he perceived himself as a Dissenting minister, and his voluminous writings (over 150 books and pamphlets) cover an impressive range of subjects, from theology, history, politics, linguistics, and education, to psychology, optics, electricity, and chemistry. Priestley's omnivorous intellectual interests were characteristic of the Enlightenment *savant*. He was clearly a man of parts--an ingenious experimentalist, a controversial Dissenting minister, an outspoken political critic, and a supporter of republican movements such as the American and French Revolutions. This illustrated talk will focus on the interwoven threads of religion, politics, and science in Priestley's life and work.

NOVEMBER MEETING

MR. JEFF STURCHIO

SCHEDULE:

6:00 Social Hour
(Cash Bar)

7:00 Dinner
(Beef and Burgundy)

8:30 Jeff Sturchio
Center for the
History of Chemistry
"Joseph Priestley -
Enlightenment Chemist"

DATE:

Wednesday, November 20, 1985

PLACE:

Officers' Club
Edgewood Area
Aberdeen Proving Ground
(NOT the Aberdeen Area)

RESERVATIONS:

Dinner reservations should be made by mailing checks, payable to Maryland Section of ACS, to

John Corliss
P.O. Box 20899
Baltimore, MD 21209

by November 11. Late reservations may be made by calling John Corliss at (301) 235-6612 or Nolan Phillips at (301) 939-3500.

Dinner price $10.00 per person, but spouses, retired chemists and students may attend for $8.00

It is not necessary to be a member of the American Chemical Society to attend.

Directions: Take I-95 north to exit 4. Take route 24 south to the Edgewood Area of Aberdeen Proving Ground. The guard will be expecting all who have made reservations. After being admitted by the guard, continue straight past a traffic light. The road will then be identified as Hoadley Road. Follow this to a stop sign, a chapel and Austin Road. Turn right on Austin Road. After a Children Warning sign bear left onto Parrish Road. The second right, Gunpowder Loop, will pass the front of the Officers' Club (Bldg E-4650). Parking is in the rear.

DECEMBER MEETING

Next month's meeting will feature the Maryland Chemist Award. The meeting is scheduled for December 18 at the College of Notre Dame of Maryland.

SHORT COURSE

A short course is planned for either January 11 or January 18 on some aspect of practical chemistry. Details will be available in *The Chesapeake Chemist* for December.

CHANGES OF ADDRESS

It is not necessary to notify *The Chesapeake Chemist* of address changes. We get our mailing labels each month from the ACS, so if you inform the ACS of your address change we will automatically receive the correct label.

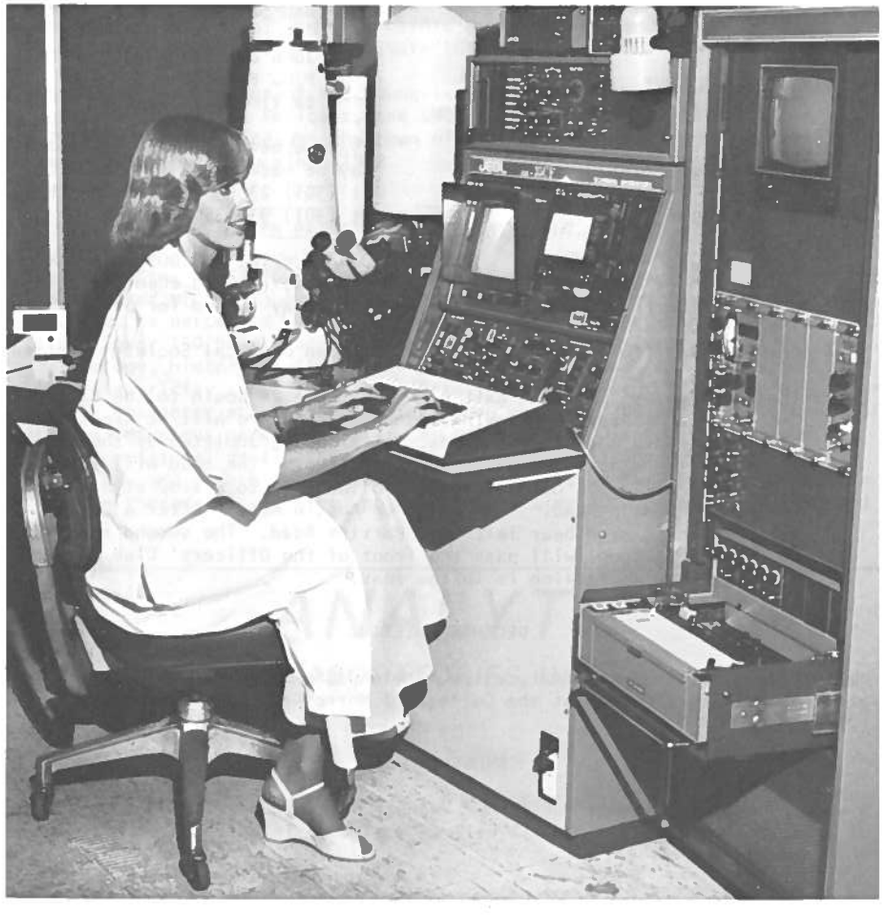
REMSEN AWARD

The Remsen Award Committee is accepting nominations and suggestions for the 1986 Remsen Award. Nominations and requests for information should be sent to Dr. Timothy J. McNeese at Loyola College.

CA INDEX GUIDE

Chemical Abstracts Service has issued the 1985 edition of the *CA Index Guide*. The guide specifies major points of CA indexing policy and cross-refers subject terms and substance names used in the literature to the appropriate CA index terms and CAS Registry Numbers.

Further information may be obtained by writing CAS Customer Services, 2450 Olentangy River Road, P. O. Box 3012, Columbus, Ohio 43210 or by calling (800) 848-6538.



Civilian chemist and scanning electron microscope at Edgewood's Chemical Research and Development Center. Photo from the 67th anniversary special supplement to the APG News.

ACS REORGANIZES ITS GOVERNMENT AFFAIRS ACTIVITIES

Changes in office structure are often made to serve more effectively the interest of those represented. The ACS has accomplished such a reorganization of its external affairs activities. Dr. Eric Leber has been named Director of the newly established organization of Public Policy and Communication. Within this organization the ACS government relations activities have been expanded under the new Department of Government Relations and Science Policy (GRASP), formerly Department of Public Affairs. The Head of the Department of Government Relations and Science Policy is Kathleen A. Ream, former manager of the ACS Office of Federal Regulatory Programs. Activities of the Department are divided among three offices to represent ACS members in the areas of science policy, legislation, and regulation.

Dr. Annette T. Rosenblum is the Manager of the new Office of Science Policy Analysis (OSPA). This Office will be monitoring federal support for science research activities and analyzing federal agency budgets. Questions of policy which traditionally have been the center of debate within the science community, such as instrumentation, peer review, and the free flow of scientific information, will be tracked. Also, the ACS Congressional Fellowship Program is conducted through OSPA. This Program supports two chemists or chemical engineers each year by offering these scientists the opportunity to gain first-hand experience in the development of science policy through employment in a Congressional office.

The Office of Legislative Programs (OLP) monitors legislative activities at the federal, state, and local levels. At the federal level, OLP staff attend Congressional hearings and serve as the focal point for ACS communication with Congress. At the state and local levels, OLP provides technical assistance through the expertise of ACS members in areas relevant to chemistry. In addition, the Office offers guidance to ACS local sections who wish to participate in public policy issues. Anna Fotias is the Manager of the Office of Legislative Programs.

The Office of Federal Regulatory Programs (OFRP) is concerned with regulatory and environmental issues. The Manager of OFRP is Terri Nally. She and her staff serve as liaison for regulatory information between federal and state regulatory agencies and the scientist whose work is affected by such regulation. This function is carried out through OFRP sponsorship of forums, academic networks, and by publication of a series of information pamphlets and brochures which discuss the causes of and solutions to matters affected by regulation.

To obtain information on any of these programs, write to the appropriate office at the American Chemical Society, 1155 16th Street, N.W., Washington, D.C. 20036.

Michele M. Boisse

CAS BIOTECH UPDATES

Chemical Abstracts Service has announced the introduction of *CAS Biotech Updates*, a new series of current-awareness bulletins for researchers, librarians and marketing managers in the biotechnology industry.

The printed bulletins, separated into four separate topics (Biosensors, Environmental Biotechnology, Genetic Engineering and Pharmaceutical Applications), will be issued every other week starting in January.

Further information may be obtained by writing CAS Customer Services, 2450 Olentangy River Road, P. O. Box 3012, Columbus, Ohio 43210 or by calling (800) 848-6538.

1986 HERMAN SKOLNIK AWARD

Dale B. Baker, Deputy Executive Director, American Chemical Society and Director, Chemical Abstracts Service, has been named to receive the 1986 Herman Skolnik Award of the Division of Chemical Information of the American Chemical Society. The award was inaugurated in 1976 to recognize outstanding contributions to and achievements in the theory and practice of chemical information science. It will be presented to Mr. Baker at the 191st National meeting of the ACS in New York City, April 6-11, 1986. A special symposium in Mr. Baker's honor will also be held at that time.

Under Dale Baker's leadership, CAS moved from the conventional abstracting and indexing service that it was in the 1950's, to one of the world's premier automated information processing and retrieval services. During his tenure as director, the pioneering work on computer handling of very large files of information, methods of chemical data representation in computer-readable form, and searching techniques provided direction for the entire information industry. His unrelenting insistence on comprehensiveness, timeliness and quality in the CAS database, and his courage to embark on new paths and try new approaches, have made CAS what it is today.

ACS CONGRESSIONAL FELLOWS

The ACS is seeking candidates among practitioners of the chemical sciences for appointments for its two ACS Congressional Fellowships. The deadline date for receipt of application materials is November 30, 1985. The fellowship term begins in the fall of 1986.

Information can be obtained from Ms. Mary L. Wolfe in the Department of Government and Science Policy at ACS headquarters in Washington, telephone (202) 872-4384.

COUNCILOR'S REPORT FROM THE FALL MEETING IN CHICAGO

The Council met on Wednesday, September 11, beginning at 8:00 a.m. All of the Maryland Section councilors were present, the meeting lasted until approximately 11:00 a.m. After approval of the minutes and a number of housekeeping chores the Council heard from current President Fields who talked, among other things, about the success of the recent Pacific Basin congress and plans for another in 1989, the ACS reports on "Opportunities in Chemistry" and "Chemical Education" and the recent international conference on chemical education held in Tokyo. Past President Niederhauser talked about the recent chemistry olympics and Chairman of the Board Smith announced the plans for the construction for a new office building on the property on N Street in Washington, a bond issue for capital funds and a number of other minor issues currently before the Board. Executive Director Crum talked about the Society's efforts to improve the public perception of chemistry. The rest of the meeting was devoted to committee reports, there being no items of note under old business or new business. However, during committee reports, the Council took action on a number of items as follows:

1. Approved a revised charter for the Committee on Chemistry and Public Affairs.

2. Accepted a plan for redistricting of region two to bring it up to the statutory required size. It is worth noting that a major redistricting plan to take effect in 1988 will be considered at the next Council meeting in New York.

3. Passed a bylaw change that removes approval of the setting of subscription prices from the Council and allows for a more efficient process involving only the Society Committee on Publications and the Board.

4. Allowed for the continuation of current fees at National meetings with some minor changes in special categories.

5. Refused to accept a bylaw revision that would better define, for divisions of intermediate size, the number of councilors available to represent them. Instead, the petition was referred back to committee. This turned out to be the only controversial item on the agenda and it was controversial only in that an overall plan needs to be presented. One will be presented in preliminary form at the spring meeting in New York.

We urge you to read *Chemical & Engineering News* for more information about this Council meeting. If you have any views on any of the subjects noted here or in that issue of *C&E News* please call or write us so that we may properly represent you in the future. In all issues, unless we are instructed otherwise, we use our best judgment in voting on these matters. In the meeting in Chicago your councilors voted together and with the majority on all issues.

Respectfully submitted,
Your councilors

Merle Eiss *Don Jones*
David Roswell *Chuck Rowell*