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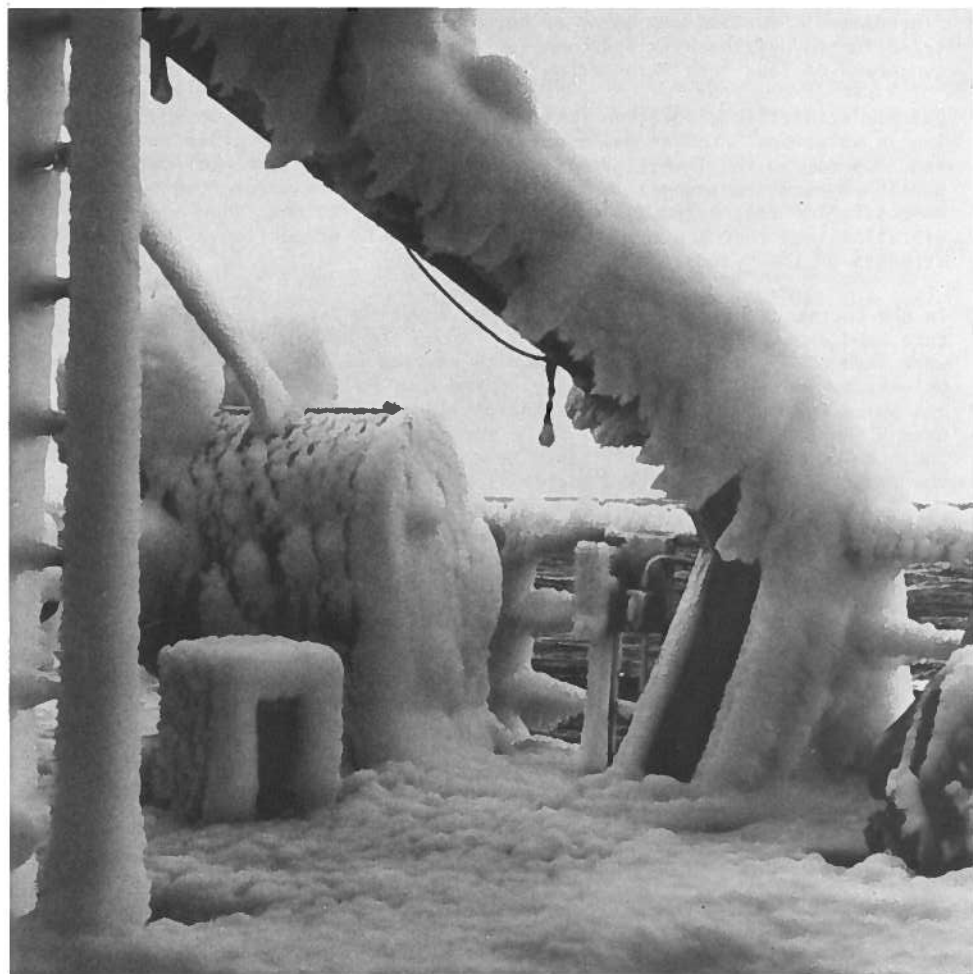
# CHESAPEAKE CHEMIST

MARYLAND SECTION  
AMERICAN CHEMICAL SOCIETY

VOL. XXXVI

SEPTEMBER, 1980

NUMBER 6



LESTER P. KUHN

1913 - 1980

Lester P. Kuhn, an outstanding member of the Maryland Section of the American Chemical Society, died on 30 April 1980. A native of New York City, he received his chemical education at Alfred College (B.S. 1935), Brooklyn College (M.S. 1940), and The Johns Hopkins University (Ph.D. 1948, under the direction of Professor Alsoph H. Corwin).

Jobs for chemists were scarce in the 30's; Lester's first one was in 1940 with the National Aniline Division of Allied Chemical in Buffalo. In 1942 he joined a brilliant group of scientists and engineers at the Army Ordnance Corps' Ballistic Research Laboratory at Aberdeen Proving Ground, where the rest of his professional career was spent. In 1954 he was appointed Chief of the Chemistry Branch of the Interior Ballistics Laboratory, and in 1969 became Chief Chemist of that Laboratory. Illness forced his retirement in 1975.

Lester Kuhn was an exceptionally versatile chemist with a wide range of interests that included chemical kinetics, synthesis, and infrared spectroscopy. His chemical achievements fall roughly into three classes. The first was his work on the chemistry of nitrocellulose decomposition and the decomposition kinetics of other propellant ingredients. The second includes his work on the synthesis of novel propellant ingredients. Studies of reactions of hydrazine, fluoroamines, various compounds of boron, and the explosive reaction of tetrafluorohydrazine with hydrogen fall into this group, as do the interesting syntheses of four- and five-carbon azido nitrates.

But his scientific reputation rests most solidly on his work on hydrogen bonding in solutions. Lester was a pioneer in the application of infrared spectroscopy to the investigation of hydrogen bonds in inert solvents and published about ten papers on his results. One of the major findings was the demonstration that hydrogen bonding causes a shift in the frequency of the O-H vibration, and that the magnitude of this shift is proportional to the strength of the hydrogen bond formed.

In the course of his career, he published about 42 papers in the open literature, and about 18 Government reports. Among the honors he received for his work were a Guggenheim fellowship, which enabled him to spend a year at Oxford University in 1950, and a Secretary of the Army Fellowship which took him to the Swiss Federal Institute of Technology (the ETH) for work with Professor Hans H. Günthard in 1958. In 1965 he was presented the Robert H. Kent Award, the premier honor of the Ballistics Research Laboratories, and in 1973 he was the recipient of the Maryland Section's Chemist of the Year Award.

It was my good fortune to have known Lester Kuhn for many years. He was an ideal supervisor, always ready with advice and suggestions when they were wanted or needed, but never obtrusive. His self-confidence was such that he never felt the need to bolster his ego by humiliating or brow-beating a subordinate. Although Lester Kuhn spent virtually all of his professional life as a Government employee, it must be admitted that he was not a model bureaucrat. He regarded paper-work (except writing journal articles) as an unnecessary evil and always treated it with good-natured contempt. He had a fine sense of humor, an example of which is the title of a paper (joint with Masahiro Inatome), "BON-BON. A Novel Heterocycle Containing Boron, Oxygen, and Nitrogen," *JACS* **85**, 1206 (1963).

The memory of Lester Kuhn will always be a blessing for those who knew or worked with him. My own sharpest memory is of Lest studying molecular models of diols, rotating, slowly, slowly rotating the OH groups, gauging the interactions by eye. Now there was a *chemist*-all in all, we will not see his like again.  
-E.F.



# THE CHESAPEAKE CHEMIST

VOL. XXXVI

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Chemical Education....Sr. Mary Vincent  
The College of Notre Dame of MD  
435-0100

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Publicity.....Richard H. Smith  
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*The Chesapeake Chemist* is published monthly September through May by the Maryland Section of the American Chemical Society. Address editorial comments to Raymond C. Petersen, 9329 Joey Drive, Ellicott City, Md. 21043. Send advertising copy and inquiries to Merle I. Eiss, McCormick and Co., Inc., 204 Wight Avenue, Hunt Valley, Md. 21031. 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.

COMMITTEE ON PROFESSIONAL RELATIONS REPORTS ON  
MULTIPLE TERMINATIONS OF CHEMICAL PROFESSIONALS

The Committee on Professional Relations (CPR) has recently reported that approximately 44 chemical professionals were involved in multiple terminations which occurred between the winter of 1978 and August 1979 at the following companies: J.T. Baker Diagnostics Division (Bethlehem, PA); LaMaur, Inc. (Minneapolis, MN); Searle Pharmaceuticals, Inc. (Skokie, IL); Swift & Company (Oak Brook, IL); and Thiokol Corporation (Trenton, NJ and Moss Point, MS).

The 16th in a series dating back to 1969, this report compares the conditions of these terminations to the ACS *Professional Employment Guidelines*. This comparison is based upon information obtained from the companies that agreed to supply it, and from those terminees who responded to CPR's survey of every person known to have been terminated. Each set of responses is reported individually. The report also notes that two companies (Swift and Thiokol) declined to provide CPR with detailed information and that such non-cooperation has become characteristic of Thiokol, a company which has had at least four different reductions-in-personnel within five years. For these two companies, information obtained from the terminees provides the sole basis for judging compliance with the ACS guidelines.

The rate of compliance with the *Professional Employment Guidelines* varies from company to company. None of the companies appears to have met the standards for providing their terminees with what ACS considers acceptable in terms of severance pay, assistance, or explanation of rehire privileges. Companies which appear to have met the remaining ACS guidelines are as follows: advance notice (four-week minimum) - J.T. Baker, LaMaur, Searle, and Swift; pension vesting (full vesting after 10 years' service) - J.T. Baker, LaMaur, Swift, and Thiokol; employee service (those with minimum of 10 years' service should not be terminated except for continued evidence of previously documented inadequate performance or cause) - J.T. Baker; and, protection plans (should be extended for one month following termination at same rate of contribution as before - employee would have additional 31-day grace period) - Swift, and Thiokol.

Copies of this report, and all previous reports, are available at no charge to individual ACS members and local ACS sections. Please address all requests for the full report(s) to Earl Klinefelter, American Chemical Society, Office of Professional Relations, 1155 16th Street, N.W., Washington, D.C. 20036.

Prior to 1979, the full text of these reports was routinely published in *Chemical & Engineering News (C&EN)*. Despite CPR's request for continuation of this practice, the full text of the two most recent termination reports was not published; in accordance with its new experimental policy, *C&EN* carried news stories, based on these reports, in its issues of November 26, 1979 and April 28, 1980. The Committee believes that the full report provides much important information that is not included in a news story and, for that reason, invites all ACS members and officers of their local sections to request copies, which will be sent without charge.

METROCHEM '80

Metrochem '80, a meeting sponsored jointly by the New York Section and the Polymer Division of ACS and by the American Association of Clinical Chemists will be held October 3-5, 1980 at the Pines Hotel, South Fallsburg, N.Y. The program will include symposia, short courses, workshops and general sessions.

Program Chairman from the New York Section is Dr. Donald D. Clark of Fordham University, Bronx, N. Y. 10458.

MARYLAND SECTION FUTURE PROGRAM

Date	Location	Speakers	Topic
October 15	Officers' Club Edgewood Area Aberdeen	Edward J. Walsh, Jr. (Eastman Kodak Co.)	Color Photography
	Proving Ground	Sigma Xi Chesapeake Chapter	Poster Session
November 19	College of Notre Dame	George Storti (Solarex Corp.)	Solar Photovoltaics
		Kenneth Schwarz (Md. Geological Survey)	Hydrocarbon Exploration in Baltimore Canyon
December 10	College of Notre Dame	Maryland Chemist Award	
January 21	Univ. of Md. Balto. County	Isidore Adler (Univ. of Maryland)	Geochemical Exploration of the Planets

NOMINATING COMMITTEE REPORT

The Nominating Committee of the Maryland Section presents the following slate for 1981 officers, councilors, and members-at-large of the Section:

Chairman-elect	Merle Eiss
Secretary	Frances Hummel
Treasurer	Harold Klapper
Councilor (1981-83)	Charles Rowell
Alternate Councilor	Linda Sweeting
Members-at-large	Sr. Vincent
	Maria Kirk
	Donald Hoster
	Richard Rebbert
	Cheryl Manger

Elwin C. Penski, the 1980 Chairman-elect, automatically becomes Chairman in 1981.

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## JAMES R. GRIFFITH

James R. Griffith received his B.S. degree from Birmingham-Southern College and his M.S. and Ph.D. degrees from the University of Maryland in 1961 and 1964, respectively. Dr. Griffith joined the Chemistry Division of the Naval Research Laboratory in 1955 as a Research Chemist and specialized in polymeric materials of long durability, especially linings for bulk fuel storage tanks. In 1969 he was appointed Head of the Organic Synthesis Section from which have issued the basic syntheses of fluorinated polymers of the epoxy, polyurethane and acrylic classes as well as polyphthalocyanines. He is now Head of the Section of Organic Synthesis and Coatings within the Polymeric Materials Branch of NRL.

Dr. Griffith has been a regular contributor to the programs of the Organic Coatings and Plastics Division of ACS for over 20 years and has served in various offices of this Division. In 1979 he shared the Hillebrand Award of the Chemical Society of Washington for his work in the syntheses of innovative polymers.

### SYNTHESES OF NOVEL POLYMERS

Heavily-fluorinated epoxies and polyphthalocyanines are in the general class of "infinite network" polymers formed from simple, processable precursors. Such polymers are in demand because they are most convenient for use as composite matrix binders for high strength, light weight, energy efficient structures. These newly-synthesized resins add capabilities beyond those of ordinary matrix materials in thermal stability, environmental decay resistance, and other special properties. The basic syntheses required new approaches to problems of fluorocarbon incorporation into resin systems and of the effective attachment of phthalonitrile terminals to prepolymers. A wide variety of novel uses which range from nonstick fouling release coatings for ship hulls to organic semiconducting devices is being developed.

(Our cover photo shows icing on a ship in the Arctic region.)

## AARON N. BLOCH

Aaron N. Bloch received his B.S. degree in chemistry from Yale University in 1963 and his Ph.D. in chemical physics from the University of Chicago in 1968. After a year of postdoctoral work at MIT he joined the faculty of the Johns Hopkins University, where he became a Professor of Chemistry in 1977. He spent 1976-77 on sabbatical leave at the James Franck Institute of the University of Chicago, and has consulted extensively at Bell Laboratories, IBM Thomas J. Watson Research Center, Energy Conversion Devices, Inc., and the Corporate Research Laboratories of the Exxon Research and Engineering Company. On July 1, 1980, he left Johns Hopkins in order to assume a senior research position at Exxon. He has held fellowships from the Woodrow Wilson Foundation, National Science Foundation, and Alfred P. Sloan Foundation, and in 1975 received a Distinguished Young Scientist Award from the Maryland Academy of Sciences.

Dr. Bloch's research centers upon problems in condensed matter, blending physics with chemistry and theory with experiment. In recent years he has concentrated principally upon the development and understanding of new organic conductors and upon the microscopic basis for chemical trends in the structural, physical, and electronic properties of simple solids.

*cont. on p 8...*

# SEPTEMBER MEETING

### DATE:

Wednesday, September 17, 1980

### PLACE:

W. R. Grace Research Center  
Rt. 32 west of Rt. 29  
Clarksville, Maryland

### SPEAKERS AND TOPICS:

5:45 pm  
James R. Griffith  
U. S. Naval Research Laboratory  
Synthesis of Novel Polymers

8:15 pm  
Aaron Bloch  
Exxon Corporation  
Polymeric Conductors



JAMES R. GRIFFITH

### COCKTAILS AND DINNER:

Cocktails 6:30 - 7:15 pm

*Courtesy W. R. Grace & Company*

Dinner (7:15) \$8.00 per person, *except* spouses and retired chemists may attend the dinner for \$6.00 and students may attend for \$5.00

Please make reservations by mailing checks to

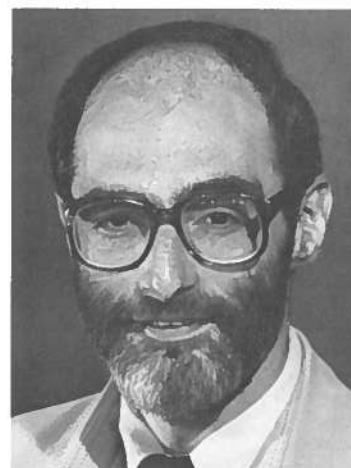
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Joppa, MD 21085*

by September 10. This will reduce delays at the door. If necessary, reservations may be made by calling

879-8589 (Baltimore local)  
or 671-2243 (8:00 to 4:30  
weekdays)

877-2923 (evenings after 7:00)

before September 12.



AARON BLOCH

It is not necessary to be a member of the American Chemical Society to attend either the dinner or the talks. If you do not wish to attend the dinner, no reservation is required and there is no charge.

...cont. from p 6

## PHYSICS AND CHEMISTRY OF SOME MOLECULAR METALS

Organic charge-transfer salts of the TTF-TCNQ family are molecular crystals whose intrinsic electrical conductivities are often exceptionally anisotropic and exceptionally high. To a degree unmatched among conventional electrical materials, these properties are directly subject to chemical control. Through relatively simple manipulations of molecular architecture their range has been extended from coulomb insulators through semiconductors, semimetals, and metals to the first organic superconductors. We discuss the chemical and physical basis for this behavior, and review the experimental situation. We show that the crystal binding energy, fractional charge transfer, and chemical stability of the metallic state in these systems are fully described in terms of a set of "molecular chemical potentials," roughly analogous to atomic electronegativities and determined from known experimental and computational results. On the other hand, the electrical transport and thermodynamic phase transitions are dominated by the much smaller energies associated with structural disorder, interchain coupling, and the instabilities of the one-dimensional electron gas. We summarize the implications of these principles for the design and synthesis of new organic conductors.

### MARM - CALL FOR PAPERS

The 15th Middle Atlantic Regional Meeting of ACS will be held January 7-9, 1981 at the Capital Hilton Hotel in Washington, D. C.

The deadline for submission of papers is October 10, 1980.

### GENERAL SESSIONS

Analytical Chemistry - Biochemistry - Medicinal Chemistry - Chemical Documentation - Chemical Education - Chemical Technology - Environmental Chemistry - Inorganic Chemistry - Organic Chemistry - Polymer Chemistry - Physical Chemistry - Undergraduate Research

### SPECIAL SYMPOSIA

Magnetism in Heteropolynuclear Compounds - Natural Products in Agriculture  
Polymer Synthesis and Characterizations - Marine Chemistry - Natural Toxins  
Iron in Biological Systems - Reactions in Ordered Media - Mass Spectroscopy  
Technician Affiliate Group - Computers in Chemistry - Nonmetallic Conductors  
Radiotracers in Medicine - Bioactivity vs. Structure - Atmospheric Chemistry  
Narcotic Receptors - Organic Synthesis - Pheromones

General Chairman: Bruce B. Jarvis, Dept. of Chemistry, Univ. of Maryland,  
College Park, Maryland 20742

Program Chairmen: Bhushan Mandava, U.S. Dept. of Agriculture, Building 050 -  
Room 32, BARC West, Beltsville, Maryland 20705

Sam Page, Food & Drug Administration, HFF-454, 200 C Street  
S.W., Washington, D.C. 20204

Exposition: John Moody, National Bureau of Standards, Building 222 -  
A355, Washington, D.C. 20234

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## LEGAL PROTECTION FOR EMPLOYEE RIGHTS

According to a report by the Committee on Scientific Freedom and Responsibility of the American Association for the Advancement of Science (AAAS), the rights of "whistleblowers" (employees who speak out about real or potential problems, often at the cost of their jobs), are protected in certain pieces of legislation. The Committee has identified eight public laws which contain "employee protection" sections. These sections prohibit adverse actions by employers against employees who assist in carrying out the regulatory purpose of the legislation and are included in the following:

Occupational Safety and Health Act of 1979 (P.L. 91-596, Sec. 11c)  
Federal Water Pollution Control Act Amendments of 1972 (P.L. 92-500, Sec. 507)  
Safe Drinking Water Act of 1974 (P.L. 93-523, Sec. 1450)  
Toxic Substances Control Act of 1976 (P.L. 94-469, Sec. 23)  
Resource Conservation and Recovery Act of 1976 (P.L. 94-580, Sec. 7001)  
Clean Air Act Amendments of 1977 (P.L. 95-95, Sec. 312)  
Federal Mine Safety and Health Act of 1977 (P.L. 95-164, Sec. 105c)  
Nuclear Regulatory Commission Authorization Act of 1978 (P.L. 95-601, Sec. 10)

To qualify for the protection, in some cases the employee must file a complaint with the Secretary of Labor within 30 days of the alleged discriminatory act. The statutory time limit is currently strictly enforced by the Department of Labor; thus, the complaint should be filed immediately, rather than waiting until the completion of other appeals.

Complaints may be filed by writing directly to the Secretary of Labor, citing the appropriate legislation which offers the protection, and describing the prohibited action. The Secretary is required to investigate the complaint and parties unable to settle their dispute amicably are, upon request, entitled to a formal hearing conducted in accordance with the Administrative Procedures Act. If discrimination is found, the employee may be entitled to reinstatement, back wages, and possibly an award of attorney's fees.

Employees are generally uninformed about the existence of these protections. For this reason, The AAAS Committee on Scientific Freedom is urging scientists and engineers to bring this information to the attention of their colleagues, particularly nonprofessional technical workers who might also come into conflict with employers over health and safety issues. The 30-day time limit makes it all the more important that employees be aware of these protections before crises arise.

For further information, contact Mr. Sam Goldstein in the Wage and Hour Division of the Employment Standards Administration, U.S. Department of Labor, (202) 523-7474 or the staff of the AAAS Committee on Scientific Freedom and Responsibility. The Committee is monitoring enforcement of the protections and asks scientists or engineers who appeal to the Secretary of Labor to send copies of their complaint material to the AAAS Committee Staff Officer, Rosemary A. Chalk, 1776 Massachusetts Avenue, N.W., Washington, D.C. 20036, telephone (202) 467-5441.

### MARYLAND CHEMIST AWARD

Persons wishing to make a nomination for the 1980 Maryland Chemist Award should contact Dr. Joyce J. Kaufman of the Awards Committee.

The Maryland Chemist Award was established to recognize and to honor, each year, a member of the Maryland Section for outstanding achievement in the field of chemistry. The achievement may be in pure or applied chemistry, chemical engineering or chemical education.

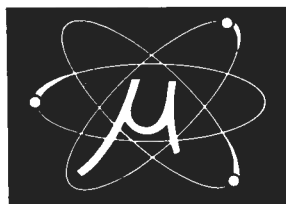
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