



THE **CHESAPEAKE
CHEMIST**

MARYLAND SECTION
AMERICAN CHEMICAL SOCIETY

VOL. XXX

MARCH, 1974

NUMBER 3



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THE COVER
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(BALTIMORE COUNTY)
PHOTO BY CALVIN C. TATMAN


The Chesapeake Chemist is published monthly September through May by the Maryland Section of the American Chemical Society. Address editorial comments to Howard J. Cohen, Glidden-Durkee, Div. of SCM Corp., 3901 Hawkins Point Road, Baltimore, Md. 21226. Phone 633-6400. Address advertising inquiries and copy to Kent R. Zeller, McCormick & Co., Inc., 204 Wight Ave., Hunt Valley, Md. 21031.



Dr. Lester P. Kuhn (left) of Aberdeen Proving Grounds received the Maryland Chemist Award on October 24, 1973 from Dr. Yale H. Caplan, 1973 Chairman of the Maryland Section.


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MARCH MEETING

ANALYTICAL COMPUTER NIGHT

DATE:

WEDNESDAY, MARCH 20, 1974

PLACE:

Eudowood Gardens Lecture Room,
 Eudowood Plaza, Joppa Road near
 Goucher Boulevard.

SPEAKERS AND TOPICS:

5:30 PM
 Dr. Stuart Cram
 National Bureau of Standards
 "Optimization of Gas Chromatographic Separation with Mini Computers"

8:30 PM
 Dr. Sam Perone
 Purdue University
 "Computer Enhancement of Analytical Techniques - State of the Art"

SOCIAL HOUR:

There will be a social hour after the meeting. Refreshments will be served.



DR. SAM PERONE

COCKTAILS AND DINNER:

Eudowood Gardens Dining Room
 Cocktails (6:30-7:15). Hot buffet dinner (7:15) for \$5.00 per person. Students and their spouses may attend the dinner for \$3.00 each. Reservations are necessary for the dinner, and should be made with Dr. Allen Bednarczyk, McCormick and Co., Inc., 204 Wight Avenue, Hunt Valley, Md. 21030, Phone 667-7480, 667-7470, no later than March 15. It is not necessary to be a member of the American Chemical Society to attend the dinner or the talks.



DR. STUART CRAM

The following 50 year members will be honored at our March meeting:

MR. PAUL W. BACKMAN
 DR. E. KENNETH HAVILAND

DR. STUART P. CRAM

Dr. Stuart P. Cram is Chief of the Separation and Purification Section at the National Bureau of Standards in Washington, D.C. He received his B.S. from Kansas State Teachers College in Emporia, Kansas; his M.S. from the University of Wisconsin in 1963; and his Ph.D. from the Univ. of Illinois in 1966. In 1966, Dr. Cram joined the faculty of the University of Florida and accepted his present position in August '72. In 1973, he was awarded the Stephen Dal Nogare Award in Chromatography. He is a member of the Editorial Advisory Board of the Journal of Chromatographic Science, editor of the Benchmark Papers in Analytical Chemistry series, associate editor of Treatise on Analytical Chemistry - Principles and Techniques of Chromatographic Separations, co-author of the 1970 and 1972 biennial fundamental review of gas chromatography for Analytical Chemistry, and the second edition of Cas-Liquid Chromatography with R. S. Juvet. He is a consultant to the E-19 Committee on Gas Chromatography of ASTM, has been an invited lecturer at the Purdue University short course on "Digital Computers in Chemical Instrumentation," and is one of the lecturers in the ACS short course on "Intermediate Gas Chromatography." In 1971, he presented a series of lectures on gas chromatography in India under the auspices of NSF. His publications and research interests are in the areas of gas and liquid chromatography, mass spectrometry, plasma chromatography, laboratory computers, and the development of analytical instrumentation, and he has authored or co-authored more than 40 technical publications in these areas. He is a member of the American Chemical Society, American Association of Clinical Chemists, American Society for Mass Spectrometry, American Nuclear Society, Society for Applied Spectroscopy, American Association for the Advancement of Science, Sigma Xi, Sigma Pi Sigma, Alpha Chi Sigma, and Lambda Delta Lambda.

DR. SAM P. PERONE

Professor Perone was born in Rockford, Illinois, and attended Rockford College, where he obtained a B.A., in 1959 and was named to Phi Beta Kappa. He pursued graduate work in Analytical Chemistry at the University of Wisconsin, where he was awarded fellowships from the Woodrow Wilson Foundation and the National Science Foundation before completing his Ph.D. work in 1962. He joined the faculty of Purdue University in September, 1962, where he currently holds the rank of Professor of Chemistry. Prof. Perone has published over 50 research articles in the areas of electroanalytical chemistry, photoelectrochemistry, and computerized analytical instrumentation, and he has co-authored a textbook on "Digital Computers in Scientific Instrumentation". In 1970, he was awarded a NATO Senior Postdoctoral Fellowship for study at the Eidg. Technische Hochschule, Zurich, Switzerland. He is a member of the American Chemical Society, Sigma Xi, Phi Lambda Upsilon, and Alpha Chi Sigma. He is an active member of ASTM Committee E-31 on Computerized Laboratory Systems, where he currently is serving as Chairman of the Subcommittee on Systems Definition and Design.

5:30 PM

Dr. Stuart Cram

OPTIMIZATION OF CHROMATOGRAPHIC SEPARATIONS WITH MINI-COMPUTERS

A dedicated minicomputer has been interfaced to a gas chromatograph for data acquisition and real time control. The logic, software, and chromatographic theory for optimization of the experimental conditions will be discussed. The high precision, automatic sampling system, ADC clock rate, amplifier gain, temperature control, and flow rate control are all operated under computer control. The interface and control devices are all solid state and require no moving parts. From an analysis of each peak profile in real time, experimental conditions

are optimized for the solutes still on the column. The carrier gas velocity calculation is based on peak shape criteria and the temperature optimization is based on resolution.

8:30 PM

Dr. Sam Perone

Computer Enhancement of Analytical Techniques - State-of-the-Art

The digital computer has been utilized in the chemical laboratory for automation of analytical methods. Computer functions include real-time data acquisition, data processing, experimental scheduling, bookkeeping, and report preparation. These operations generally involve adapting the computer to the characteristics of existing analytical methods. An exciting aspect of laboratory computer applications is to develop computer-oriented experiments; that is, experimental techniques which take advantage of the unique characteristics of a computer as a general-purpose laboratory instrument. These characteristics include: (1) rapid execution of programmed arithmetic and logical decision steps; (2) rapid control of or response to external events; and (3) capability for rapid, "intelligent" feedback to experimental systems. By taking advantage of these characteristics, experimental techniques can be developed which provide significant enhancement of laboratory measurement capabilities. The principles of analytical technique enhancement with digital computers and specific laboratory applications will be illustrated. Also, the role of newly-developed computer applications, such as pattern recognition and implementation of micro-computers, will be discussed.

There is enclosed \$ _____ (\$5.00 per person)* for dinner reservations at Eudowood Caterers, Eudowood Plaza, for the following persons.**

Name (Please print or typewriter) Affiliation

* Please make checks payable to Maryland Section, ACS and mail together with reservation form to Dr. Allen Bednarczyk, McCormick and Co., Inc., 204 Wight Ave., Hunt Valley, Md. 21031, or phone 667-7480, 667-7470.

** Return by Friday preceding meeting.

Washington

• **About 105.6 billion gal. of motor fuel was taxed and consumed in the United States in 1972. New state motor-fuel tax receipts amounted to \$7.59 billion. Federal motor-fuel taxes, which are funneled into the Highway Trust Fund, are not included in this report.**

Data compiled from reports from state agencies to the Federal Highway Administration show that the consumption of motor fuel taxed at prevailing rates was 7.7 percent higher than in 1971, the greatest annual increase in 17 years. Net state motor-fuel receipts were 10.0 percent higher, reflecting a number of tax rate increases. The states reported that 110.1 billion gal. of motor fuel were consumed in 1972, excluding military use, but 4 percent was tax exempt or subject to full tax refund.

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AMERICAN CHEMICAL SOCIETY

ACS Short Courses



"ION-SELECTIVE MEMBRANE ELECTRODES"

The Maryland Section will present Professor Garry A. Rechnitz's "Ion-Selective Membrane Electrodes" on Saturday morning, March 30, 1974 at Loyola College. The length of the course is 1.6 hours. The fee schedule given below covers the cost of registration, refreshments and a 46-page course manual.

This audio course is a brief introduction to the chemical and physical principles underlying the selective response of certain electrodes to specific ions in solution. Four types of electrodes which demonstrate this response are considered: glass, liquid-liquid membrane, solid-state membrane, and enzyme. Various applications of ion-selective electrodes are also discussed.

This course will be of value to workers in the fields of analytical chemistry, clinical chemistry, water pollution control, biochemistry and thermodynamics.

If you wish to register, please complete the form below and mail it with your check (payable to Maryland Section, ACS) to Dr. Miller at Loyola College.

TO: Dr. Melvin P. Miller
Dept. of Chemistry
Loyola College
Baltimore, Maryland 21210

FROM: Name _____
Address _____

Phone: _____

I wish to enroll in the ACS Audio Course on "Ion-Selective Membrane Electrodes". I enclose my check in the proper amount to cover the fee for the course.

Check one:

<input type="checkbox"/> Employed participant	\$3.00
<input type="checkbox"/> Unemployed ACS member	no fee
<input type="checkbox"/> Full-time student and retired participants	\$1.50

EXECUTIVE COMMITTEE MINUTES

Minutes of the Executive Committee Meeting of the Maryland Section of the American Chemical Society held on January 30, 1974 at the Millbrook Club, Loyola College.

Present: A. Bednarczyk, Y. H. Caplan, H. Cohen, D. E. Jones, R. J. Kassel, J. J. Kaufman, J. Kolbe, M.P. Miller, C. E. Minnier, B. L. Murr, F. T. Parr, D. F. Roswell, E. F. Silversmith, T. C. Simmons, V. Vitullo.

The meeting was called to order by the Chairman, D. E. Jones, at 8:15 p.m. The minutes of the meeting of October 9, 1973 were approved as reported in the November issue of the Chesapeake Chemist.

The treasurer's report was read by A. Bednarczyk and was approved. The treasurer noted a net gain in assets of \$1272.15 for the year - the second year in succession for a gain. The total balance as of December 31, 1973 was \$7972.04.

D. E. Jones announced that the selection committee for the E. Emmet Reid Award is still accepting nominations.

M. P. Miller of the Education Committee reported plans for a short audio course on Ion-Selective Membrane Electrodes to be offered by the Section on March 30, 1974.

A. Bednarczyk of the House Committee reported the need for a stand to support the projection screen at the monthly meetings. Recent renovations at Eudwood now make it impossible to hang the screen from the wall as in the past. The Committee voted to appropriate the necessary funds for this purchase.

J. Kolbe of the Membership Committee reported that the Society is not accepting applications for new associate members. The status of present associate members is not clear, but any associate member wishing to pursue full membership should contact J. Kolbe. A lengthy discussion ensued regarding the matter of a prospective member whose application was rejected by the Society. The Executive Committee went on record as disagreeing with the Society in its decision. The Committee gave J. Kolbe a vote of confidence to use his discretion in handling future applications which are questioned by the Society.

Councillor C. E. Minnier asked the Committee for a guidance in voting for a successor to W. Bailey as Director-at-Large. The Committee suggested that his vote be cast for either R. Mariella or L. B. Rogers.

C. E. Minnier presented a letter from President-Elect Bailey seeking the Section's support of the institution of Legislative Councilors. Such councilors would be assigned to U.S. Senators and Representatives as a means of exchanging information between the legislative and scientific communities. The Executive Committee expressed its favor for such a program and will offer its assistance to Dr. Bailey.

C. E. Minnier asked about the possibility of financial assistance from the National Office for councilors to attend National meetings. The secretary was directed to obtain detailed information about the availability of assistance from National Headquarters. The Secretary was also directed to inquire whether it is permissible for the Section to appoint special alternate councilors in the event that councilors and alternate councilors are unable to attend National meetings.

B. Murr of the Remsen Award Committee asked for assistance in selecting a new Committee. He expressed the opinion that input from the Section would be helpful in the formation of the committee. J. Kaufman reviewed the history of the Remsen Committee. The Committee agreed to render its assistance.

A. Bednarczyk of the Program Committee reported some difficulty with the program of the proposed December 1974 meeting, which was to be a joint meeting with the Washington Section. The Executive Committee suggested that he pursue the possibility of designating one of the other monthly meetings as the joint meeting. He reported that the remainder of the program is still in the formative stage, but is being planned to attract greater membership participation than in the past.

H. Cohen reported the following for the Chesapeake Chemist: 1) the need for more advertisements, 2) the desirability of having all copy submitted to him already typed, 3) new (higher) costs of producing the Chesapeake Chemist, 4) the need for copy about area schools and industrial organizations for publications in the Chesapeake Chemist. The Committee authorized H. Cohen to investigate the possibility of contracting a different printer in an effort to reduce costs. A number of members made suggestions for increasing advertising, including the possibility of accepting non-technical advertisements.

D. Jones reported that two Section members are eligible for 50-year awards and have been invited to attend the March meeting as guests of the Section at which time the awards will be presented. D. Jones also indicated that he would act as a clearing house for information about group air fares to National meetings. A brief discussion of various possibilities for reduced air fares followed. The possibility of forming car pools to nearby meetings such as the forthcoming MARM was also mentioned.

The meeting was adjourned at 10:45.

Respectfully submitted
Melvin P. Miller
Secretary

BALTIMORE A KEY TO
GLIDDEN-DURKEE SUCCESS

The Baltimore area has one of the highest concentrations of plants and people in the Glidden-Durkee Division of SCM Corporation. More than 1,000 employees work in four plants, and products are shipped throughout the United States and much of the Free World. Major operations manufacture Glidden Pigments and Colors, Pemco Ceramics, and Baltimore Copper marine coatings.

One of Glidden's most important products is titanium dioxide white pigment (TiO₂)--the whitest pigment available to industry--manufactured at the Adrian Joyce Works at Hawkins Point. Marketed under the trade name ZOPAQUE, it makes both rutile and anatase grades used in high gloss enamels and industrial finishes, rubber and plastics, paper coatings, printing and writing inks, latex paints, shoe dressings, all grades of paper, and many other products.

Glidden has expanded its TiO₂ facilities since it was founded in 1933 to become one of the major producers of TiO₂ in the world. In addition to expanded sulfate production capacity, the chloride process plant, on stream in 1970, gives Glidden a pigment whiter and brighter than was possible by the former process.

In addition to manufacturing at Adrian Joyce Works, Glidden Pigments maintains laboratories for four different application processes. They are a paper applications lab, where paper is made from pulp; a facility making pigmented rubber; another which molds and extrudes plastic; and the fourth lab which makes many popular types of acrylic, oil, and water-based paints.

A small plant at St. Helena produces high grade colored pigments, Cadmolith Colors, and SILCRON, fine particle silica, used in coatings, paper, foods, and toothpaste.

Founded in 1910, Glidden-Durkee's Ceramics operations were originally known as the Porcelain Enamel Manufacturing Company (Pemco). A pioneer

in the commercial production of porcelain coating materials, Pemco has been part of Glidden-Durkee since 1961.

Located in eastern Baltimore, Pemco manufactures glass compositions and colors for porcelain enamels, glazes, glass enamels, and other uses. These are used by the appliance, plumbing ware, wall tile, dinnerware, glass container, construction, and electrical industries. The glass lining referred to in water heater storage tanks is actually a ceramic coating, and a great quantity of these are made of smelted glass from Pemco.

Major research efforts at Pemco include ceramic coatings for metals, frit, process development, inorganic pigments, and long range research.

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Operating for over a century, Baltimore Copper Paint, a leader in quality and dependability in yacht finishes, has concentrated on the development of marine finishes and compounds, exclusively. Located on the south side of Baltimore's inner harbor, Baltimore Copper Paint began operations in 1813. From its first barnacle repelling paint, Baltimore Copper now produces a wide variety of coatings for tankers, bulk carriers and container vessels, as well as pleasure craft of every description. The quality of the firm's Regatta "yacht" paints is perhaps best illustrated by the fact that every twelve-meter yacht that has successfully defended the America's Cup used Baltimore Copper Paint's Regatta products, and more often than not, the runner was also Regatta-painted.

These Baltimore varied operations are all part of Glidden-Durkee, a manufacturer of paint, coatings, foods and chemicals, and itself a Division of the broadly diversified SCM Corporation. With all its varied interests, however, perhaps no location of operations has more importance than does Baltimore.

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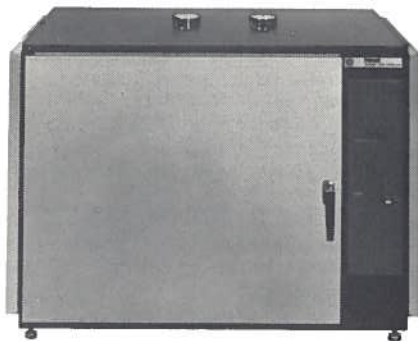
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