



THE

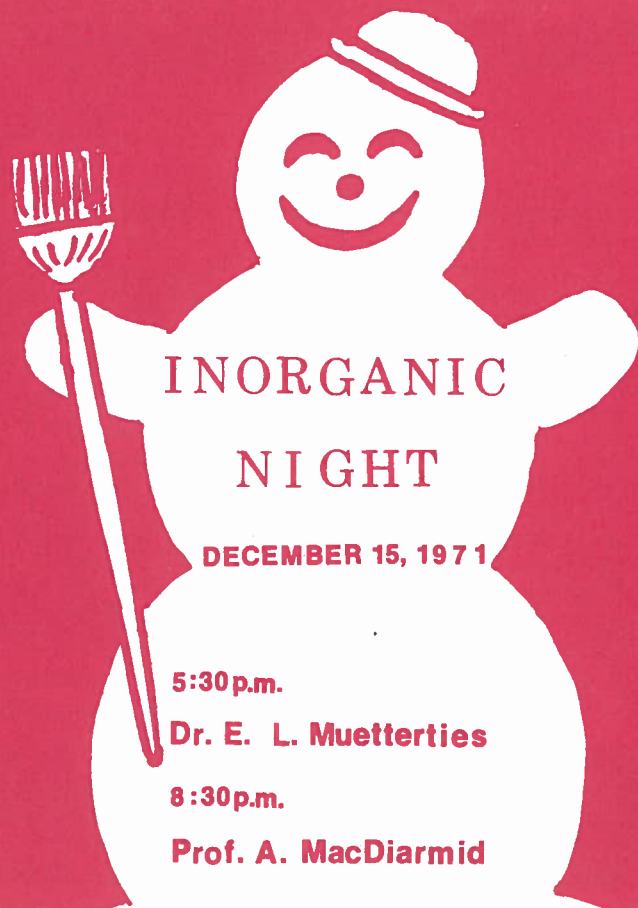
CHESAPEAKE CHEMIST

MARYLAND SECTION
AMERICAN CHEMICAL SOCIETY

VOL. XXVII

DECEMBER, 1971

NUMBER 9



INORGANIC NIGHT

DECEMBER 15, 1971

5:30 p.m.

Dr. E. L. Muetterties

8:30 p.m.

Prof. A. MacDiarmid

SGA

announces a change of company name

from

Scientific Glass Apparatus Co., Inc.

to

SGA SCIENTIFIC INC.

After 53 years, we've changed our name officially from Scientific Glass Apparatus Co., Inc., to SGA SCIENTIFIC Inc. No change has been made in our company-wide operations or in corporate policy. Management and personnel remain the same.

Our name should have been changed many years ago, as the word "glass" is misleading. It was okay back in 1918 when our company was founded because fabricating custom-made glassware was our chief specialty. But today, it is only part of our total sales picture. For many years now, we have been supplying the finest available laboratory instruments, apparatus, chemicals, standard glassware and general lab supplies, requiring a comprehensive catalog to illustrate and describe the more than 30,000 stock items we sell.

Whether you're in the market for an electronic instrument costing thousands of dollars . . . or a cork at a fraction of a cent, we can meet your requirement. We will continue to serve you to the best of our ability, and we will be constantly on the lookout for new developments and designs to aid you in your work. A booklet entitled "This is SGA" will be sent on request.



SGA
SCIENTIFIC
BLOOMFIELD, N. J. 07003



**LABORATORY...
♦ APPARATUS
♦ INSTRUMENTS
♦ CHEMICALS
♦ GLASSWARE**

Branches: Boston Mass. • Danbury Conn. • Elk Grove Village Ill. • Fullerton Calif. • Philadelphia Penna. • Silver Spring Md. • Syracuse N. Y.



THE CHESAPEAKE CHEMIST

VOL. XXVII

DECEMBER, 1971

NUMBER 9

EDITORIAL STAFF

William G. Galetto.....Editor
McCormick and Co.
204 Wight Ave.
Cockeysville, Md. 21030
Phone: 666-3155

Allen Bednarczyk....Assistant Editor
McCormick and Co.
Cockeysville, Md. 21030

M. J. Albinak....Contributing Editor
Essex Community College
Baltimore, Md.

David Gordon....Contributing Editor
U. S. Food and Drug Adm.
Baltimore, Md.

E. M. Glocker....Contributing Editor
W. R. Grace and Company
Clarksville, Md.

M. R. Vansant....Contributing Editor
The Johns Hopkins University
Baltimore, Md.

BUSINESS STAFF

Yale H. Caplan.....Business Manager
Medical Examiner's Office
111 Penn Street
Baltimore, Md. 21201
Phone: 301-752-2000 ext. 2618

MEMBERSHIP CHAIRMAN

John L. Kolbe
W. R. Grace & Co.
Clarksville, Md.

SECTION OFFICERS

Richard J. Kokes.....Chairman
Chemistry Department,
The Johns Hopkins University
Baltimore, Md. 21218

Joyce J. Kaufman.....Chairman-elect
Chemistry Department,
The Johns Hopkins University
Baltimore, Md. 21218

Herbert S. Aaron.....Secretary
7412 Kathydale Road
Baltimore, Md. 21208

Theodor C. Berenthien.....Treasurer
1328 Deanwood Rd.
Baltimore, Md. 21234

IN THIS ISSUE

December Meeting.....	5
E. L. Muetterties and Precis of Talk.....	6
A. G. MacDiarmid and Precis of Talk.....	7
1972 Section Officers.....	9
Local Section News.....	9
7th MARM.....	10

The Chesapeake Chemist is published monthly September through May by the Maryland Section of the American Chemical Society. Address editorial comments to Dr. William Galetto, McCormick and Co., 204 Wight Ave., Cockeysville, Md. 21030. Phone 666-3155. Address advertising inquiries and copy to Dr. Yale H. Caplan, Medical Examiner's Office, 111 Penn Street, Baltimore, Maryland 21201.

**BURRELL
"WRIST-ACTION"
LABORATORY SHAKERS**



The same complete mixing swirl you get with your own hand and wrist has been copied mechanically in Burrell shakers. Then, superior to human wrist-action, the shaking motion operates at a constant speed—for as long as is required.

You control procedures from gentle agitation to violent swirling and repeat any operation at another time. The degree of shaking is controlled mechanically with an adjustable knob. The full torque of the constant speed motor is always applied to the oscillating mechanism. Loads need not be equalized or balanced. Shaking degrees are set, and repeated exactly at another time, to a scale graduated from 0 to 10. A built-in timer will automatically stop the shaker at any desired time up to 55 minutes or may be set to operate continuously.

BUILD-UP[®] DESIGN

You Build-Up to suit your requirements. Starting with a standard shaker base unit, consisting of motor, oscillator and controls; you add a platform that accommodates Separatory Funnel Clamps or 8 Erlenmeyer flasks; and side-arms for 8, 12 or 16 flasks or bottles. Users may start with any Build-Up size and add or modify later, as all parts are interchangeable.

Burrell Shaker BUILD-UP SIZE BT

Offered as the most versatile arrangement for general laboratory use. Includes standard shaker base unit, platform for up to 8 Erlenmeyer flasks and side arms for up to 8 flasks or bottles.

For more information see your Burrell representative or write for Bulletin No. 307.

BURRELL

BURRELL CORPORATION
SCIENTIFIC INSTRUMENTS AND LABORATORY SUPPLIES
2223 FIFTH AVENUE, PITTSBURGH, PA. 15219

DECEMBER MEETING

INORGANIC NIGHT

COCKTAILS AND DINNER:

Eudowood Gardens Dining Room. Price is \$5.25 per person for cocktails (6:30-7:15, unlimited quantity) and hot buffet dinner (7:15). Students and their spouses may attend the dinner for \$3.00. Reservations are necessary for the dinner, and should be made with Mr. Allen Bednarczyk, McCormick and Co., Inc., 204 Wight Avenue, Cockeysville, Md. 21030, phone 666-3155, by Friday preceeding meeting.

It is not necessary to be a member of the American Chemical Society to attend the dinner or the talks, and the talks may be attended without attending the dinner.



EARL L. MUETTERTIES

DATE:
WEDNESDAY,
DECEMBER 15, 1971.

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

SPEAKERS AND TOPICS:

5:30 P.M.
Dr. E. L. Muetterties,
E. I. du Pont de Nemours
& Co. "Transition Metal
Hydride Chemistry."

8:30 P.M.
Prof. A. MacDiarmid,
Univ. of Pa.
"Silicon Chemistry."

SOCIAL HOUR:

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



ALVIN MacDIARMID

EARL L. MUETTERTIES

Earl L. Muetterties was born in Elgin, Illinois. He spent two years in the U.S. Navy after which he entered college, receiving his B.S. in chemistry from Northwestern University in 1949. In 1951, he received his A.M. from Harvard University and in 1952 his Ph.D. from the same institution.

After graduation, Dr. Muetterties joined the duPont Company as a research chemist and was promoted to research supervisor in 1957. He held that position until 1965 when he was promoted to Associate Research Director, Central Research Department of the duPont Experimental Station. Besides his duties as Associate Research Director, Dr. Muetterties is also an Adjunct Professor of Chemistry at the University of Pennsylvania and Associate Member of the University of Pennsylvania Monell Chemical Senses Center.

Dr. Muetterties' research interest are in the structure, stereochemistry and synthesis of inorganic and organometallic compounds. Besides his membership in the American Chemical Society, Dr. Muetterties is also a member of the National Academy of Science, the American Academy of Arts and Science, the American Physical Society, the Chemical Society of London, AAAS, the American Association of Physical Anthropology and the American Academy of Political and Social Sciences.

TRANSITION METAL HYDRIDE CHEMISTRY

The area of transition metal hydride chemistry has essentially been established within the last few years through the efforts of many chemists. These hydrides range from species that contain up to nine hydrogen atoms directly bound to a single metal nucleus to very complex cluster molecules that have both bridging and terminal hydrogen atoms. The metal-hydrogen bond has proven to be a critical element in many catalytic reactions such as carbonylations, hydroformylation, olefin dimerizations, and olefin polymerizations.

Recent developments in the structure, stereochemistry and chemistry of a specific class of transition metal hydrides will be presented. This class of hydrides is represented by molecules and ions having the basic composition H_xML_4 , where x is an integer from 1-4 and L is typically a tricoordinate phosphorus ligand such as a phosphine or phosphite.

WELCOME...

The following people have recently joined the Maryland Section of the American Chemical Society. The Local Section welcomes each one and invites each member to attend Local Section meetings and to participate in Local Section activities.

William O. Crawford, Leith Road, Baltimore, Md.
Dwight P. Davis, U.S. Naval Academy, Annapolis, Md.
Max Eisenberg, Fallstaff Road, Baltimore, Md.
George C. Farrant, Old Orchard Road, Baltimore, Md.
John D. Giannotti, Vectra Corp., Odenton, Md.
Stephen Albert Haut, Marietta Ave., Baltimore, Md.
Miss Kathleen Anne Kunnen, McElderry St., Baltimore, Md.
Yu Neng Kuo, Johns Hopkins Univ., Baltimore, Md.
Pvt. James R. Oehldrich, Ft. Detrick, Frederick, Md.
Rajeshmal Singhvi, Debonair Court, Baltimore, Md.
Mrs. Ellen S. Stoner, Edgewood Arsenal, Md.
John Lewis Tabor, Jr., Union Street, Havre de Grace, Md.
David van Ormer, Penna. Ave., Westminster, Md.
Dr. Kodaganallur C. Padmanabhan, Sturbridge Dr., Baltimore, Md.
Robert Marshall Ward, E. Madison, Baltimore, Md.
Dr. Albin H. Warth, York Court, Baltimore, Md.
Dean A. Wood, Taney Avenue, Frederick, Md.

ALVIN MacDIARMID

Dr. Alan G. MacDiarmid is a Professor of Chemistry at the University of Pennsylvania. His research is concerned primarily with the synthesis and study of the structure and bonding in organic and inorganic derivatives of the silicon hydrides. He has also done research in the use of electrical discharge processes for inorganic syntheses and in the use of high pressures for inorganic and organometallic syntheses.

He received the Philadelphia Section Award from the Philadelphia Section of the American Chemical Society in 1967 for his researches in silicon chemistry, and in 1971 he received the American Chemical Society Frederic Stanley Kipping Award in Organosilicon Chemistry.

Dr. MacDiarmid has acted as author and co-author of approximately ninety papers, most of which deal with some aspect (synthesis, infrared spectra, nuclear magnetic resonance spectra, mass spectra, dipole moments, structure or bonding) of silicon compounds. He is editor of the series of monographs "Organometallic Compounds of the Group IV Elements", (Marcel Dekker, Inc.). He is a past member of the Editorial Board of "Inorganic Syntheses" and "Synthesis in Inorganic and Metalorganic Chemistry".

Dr. MacDiarmid received his B.Sc. and M.Sc. degrees from the University of New Zealand. A Fulbright scholarship enabled him to study at the University of Wisconsin, where he received his Ph.D. in 1953. He received a postgraduate fellowship to study at the University of Cambridge in England where the Ph.D. degree was received in 1955. Dr. MacDiarmid is a member of the Chemical Society (England), the American Chemical Society, Faraday Society, Sigma Xi, Pi Lambda Epsilon, and Alpha Chi Sigma.

SILICON CHEMISTRY

Although silicon is the second most abundant element in the earth's crust and although it falls immediately below carbon in Group IV of the periodic table, it is remarkable, in view of the very extensive knowledge of carbon chemistry, how very little, in

comparison, is actually known about the chemistry of covalent silicon compounds. Dr. MacDiarmid believes that a comparative study of analogous carbon and silicon compounds offers an excellent opportunity of obtaining an understanding of factors which are important in determining the changes in chemistry, structure or bonding of analogous compounds as a group in the periodic table is descended. It is remarkable how many of the differences between carbon and silicon chemistry may be rationalized (although not necessarily explained!) simply on the basis of differences in the size and electronegativity of carbon and silicon and by the fact that silicon has low energy $3d$ orbitals. Examples of especially interesting differences between carbon and silicon compounds will be drawn from simple hydrides such as $(H_3Si)_3N$ and $H_3SiCo(CO)_4$ and from organosilicon compounds such as $(CH_3)_2Si(OH)_2$ and $(CH_3)_3SiMn(CO)_5$ and related species.

NOMINATIONS for REMSEN AWARD

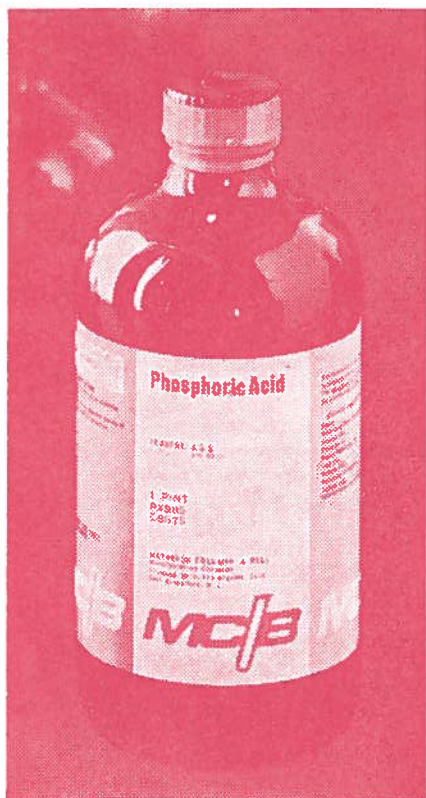
The Section is now screening candidates for the 1972 Remsen Award to be presented by the Maryland Section of the ACS. The Remsen Award Committee is calling on the members of the Maryland Section for further nominations. Nominations can be submitted to Dr. Robert G. Parr, Chemistry Department, Johns Hopkins University, Charles and 34th Streets, Baltimore, Maryland 21212, phone 366-3300.

ORGANIC MICROANALYSES

GALBRAITH
LABORATORIES, INC.

P. O. Box 4187
Knoxville, Tenn. 37921

(615) 546-1335
HARRY W. GALBRAITH, Ph.D.



Think of MCB and US when you think inorganics

Think MCB because Matheson Coleman & Bell has impressive credentials when it comes to inorganic research chemicals. True, MCB is more famous for organics but the same no compromise standards that built MCB's reputation for organics are stringently applied to inorganics.

Think of US because we are willing and able to give you fast, comprehensive service on any MCB inorganic. And that goes for any research chemical — we handle over 10,000 with the top quality MCB label.



MACALASTER BICKNELL CO. OF N. J., INC.

NORTH AND DEPOT STREETS, MILLVILLE, N. J. 08332

Area Code 609—825-3222

1972 SECTION OFFICERS

The election of officers, councilors, and members-at-large of the executive committee for the Maryland Section for 1972 was held at the November meeting. Those elected are:

Chairman.....Dr. Joyce J. Kaufman
Johns Hopkins Univ.
Chairman-elect.....Dr. Yale H. Caplan
Medical Examiner's Office
Secretary...Dr. Ernest F. Silversmith
Morgan State College
Treasurer.....Dr. Leon Weber, SCM
Members-at-Large.....Dr. Fred Gornick, UMBC
Dr. Dave Roswell,
Loyola College
Mr. Ronald J. Kassel,
Edgewood Arsenal
Dr. Peter Y. Johnson,
Johns Hopkins Univ.
Dr. Edward J. Poziomek
Edgewood Arsenal
Councilors.....Mr. F. Timothy Parr
Westinghouse
Dr. Brown L. Murr
Johns Hopkins Univ.

Alternate
Councilor.....Dr. David H. Rosenblatt
Edgewood Arsenal



COPY DEADLINE

Copy for the *Chesapeake Chemist* should be forwarded to the Editor not later than the fifth of the month preceding publication.

IF YOU CHANGE YOUR ADDRESS . . . Please do not notify the Editor of the *Chesapeake Chemist*, but send your new and old addresses to: The American Chemical Society, 1155 Sixteenth Street, N. W., Washington, D. C. 20036. The Maryland Section will then be notified.

MARYLAND SECTION NEWS

The Johns Hopkins University

Professor Dwaine O. Cowan has returned from a year's sabbatical leave as a Guggenheim Fellow at the Physikalisch Chemisches Institut Der Universität Basel, Switzerland. On his return trip last month he gave lectures on the "Radiationless Transitions in Organic Photochemistry" at the University of Freiburg and the Max Planck Institut für Kohlenforschung Abteilung Strahlenchemie, Mülheim, Ruhr, Germany.

Professor Thomas J. Kistenmacher has received an American Chemical Society-Petroleum Research Fund Type G Starter Grant entitled "Structural Studies of Coordination Complexes Prepared in Nonaqueous Solvents" in the amount of \$7500 for a period of three years.

Professor Johnson has received a National Institutes of Health Grant entitled "Photolysis of Amino-Diones - A Synthesis of Penicillin" in the amount of \$60,000 for a period of three years.

U. S. Food and Drug Adm.

Dr. S. Edward Krikorian, Jr., Associate Professor of Medicinal Chemistry at the University of Maryland School of Pharmacy has recently joined the staff of the U.S. Food and Drug Administration, Baltimore District, as Science Advisor. His new post, part-time and advisory, is designed to stimulate the academic viewpoint of the government agency. He will work in an analytical capacity in the fields of drugs, food additives, pesticides and trace metals.

Dr. Krikorian succeeds Dr. Morgenthaler of Georgetown University whose academic pursuits have taken him out of the Baltimore Washington area.

7TH MARM — "WORLD FOOD"

The 7th Middle Atlantic Regional Meeting (MARM) will be held next year at the Marriott Hotel, Philadelphia, Pennsylvania from February 14-17, 1972. The central theme of the meeting is "WORLD FOOD"

The success of this meeting will depend to a great extent on the quality and quantity of the papers to be presented. Let's make the Maryland Section well represented. Send inquiries to the following Chairmen:

General Meeting Chairman

Dr. Eugene Rosenbaum, Drexel University, Philadelphia, Pa. 19104. (215) 387-2400

Program Chairman

Dr. John F. Gall, Philadelphia College of Textiles and Science Philadelphia, Pa. 19144 (215) 843-9700

DIVISIONS REPRESENTED

The Problem of Food Supply: (Keynote Program) A. Altschul, Georgetown Univ., Washington, D.C.

Analytical Chemistry: W.C. Golton, E.I. duPont & Co., Philadelphia, Pa.

Catalysis: H. Shalit, ARCO Chemical Co., Glenolden, Pa.

Chemical Documentation: H. Skolnick, Hercules, Inc., Wilmington, Del.

Chemical Education: R. Cohen, Trenton State College, Trenton, N.J.

Chemical Technicians: F.J. Kriss, Hercules, Inc., Wilmington, Del.

Computers in Chemistry: R. Griswold, Harrisburg Polyclinic Hosp., Harrisburg, Pa.

Chemical Marketing & Economics: A.E. Fuhrmann, Rohm & Haas Co., Phila., Pa.

Fiber Chemistry: J. Schaeffgen, E.I. duPont & Co., Wilmington, Del.

Fluorine Chemistry: M. Hauptschein, Pennwalt, Corp., King of Prussia, Pa.

Inorganic Chemistry: A. MacDiarmid, Univ. of Penna., Philadelphia, Pa.

Medicinal & Biochemistry: S.T. Ross, Smith, Kline & French Labs., Phila., Pa.

Organic Chemistry: J. Williams, Temple Univ., Philadelphia, Pa.

Physical Chemistry: G. Zimmerman, Bryn Mawr College, Bryn Mawr, Pa.

Polymer Chemistry: N. Bortnick, Rohm & Haas Co., Bristol, Pa.

Rubber Chemistry: B.H. Garvey, Jr., Wayne, Pa.

Undergraduate Research: M. Trachtman, Phila. College of Textiles & Science, Philadelphia, Pa.

-----Tear-Out Dinner Reservation Form-----

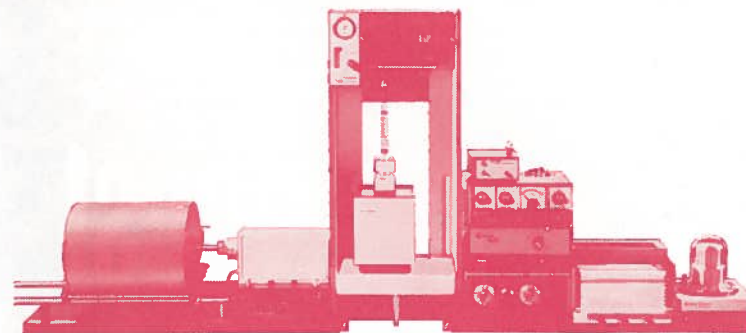
There is enclosed \$.....(\$5.25 per person)* for cocktails and dinner at Eudowood Caterers, Eudowood Plaza, for the following persons.**

<u>Name</u>	<u>(Please print or Typewrite)</u>	<u>Affiliation</u>
-------------	------------------------------------	--------------------

*Please make checks payable to Maryland Section, ACS and mail together with reservation form to Mr. Allen Bednarczyk, McCormick and Co., Inc., 204 Wight Ave., Cockeysville, Md. 21030, or phone 666-3155.

**Return by Friday preceeding next meeting.

Fisher thermal analysis systems give you the best temperature readability available today



Fisher has a thermal analysis system for each of the major techniques—DTA, TGA, QDTA, and TDA.

And all four systems give you the best temperature readability available today (.25°C from -100° to 875°C, and .5°C from 875° to 1200°C). Hence you get the best possible reproducibility, the best possible accuracy.

You also get electronic temperature compensation, plus pan-type QDTA, plus advanced programming capabilities, plus

fully controlled dynamic and static atmospheres, plus 10 parts per million TGA sensitivity, plus much, much more.

Get the full story in new product bulletins for each of the systems. Write to Fisher Scientific Company, 711 Forbes Avenue, Pittsburgh, Pa., 15219.



Fisher Scientific Co.

7722 FENTON STREET, SILVER SPRING, MARYLAND 20910

PHONE: 587-7000

The Chesapeake Chemist
University of Maryland
636 W. Lombard Street
Baltimore, Maryland 21201

Nonprofit Org.
U. S. Postage
PAID
Baltimore, Md.
Permit No. 2917

PLEASE DO NOT DELAY — DATED NOTICE INSIDE



Day in and day out, the reliability, long life and versatility of Tygon flexible plastic Tubing proves over and over that it's your best laboratory tubing investment.

TYGON[®] TUBING

Crystal-clear • Flexible • Chemically inert
Non-oxidizing • 73 standard sizes

At laboratory supply houses everywhere, or write Plastics & Synthetics Division, U. S. Stoneware, Inc., Akron, Ohio 44309.

NORTON *PLASTICS AND SYNTHETICS DIVISION*
FORMERLY U.S. STONEWARE INC. AKRON, OHIO 44309