



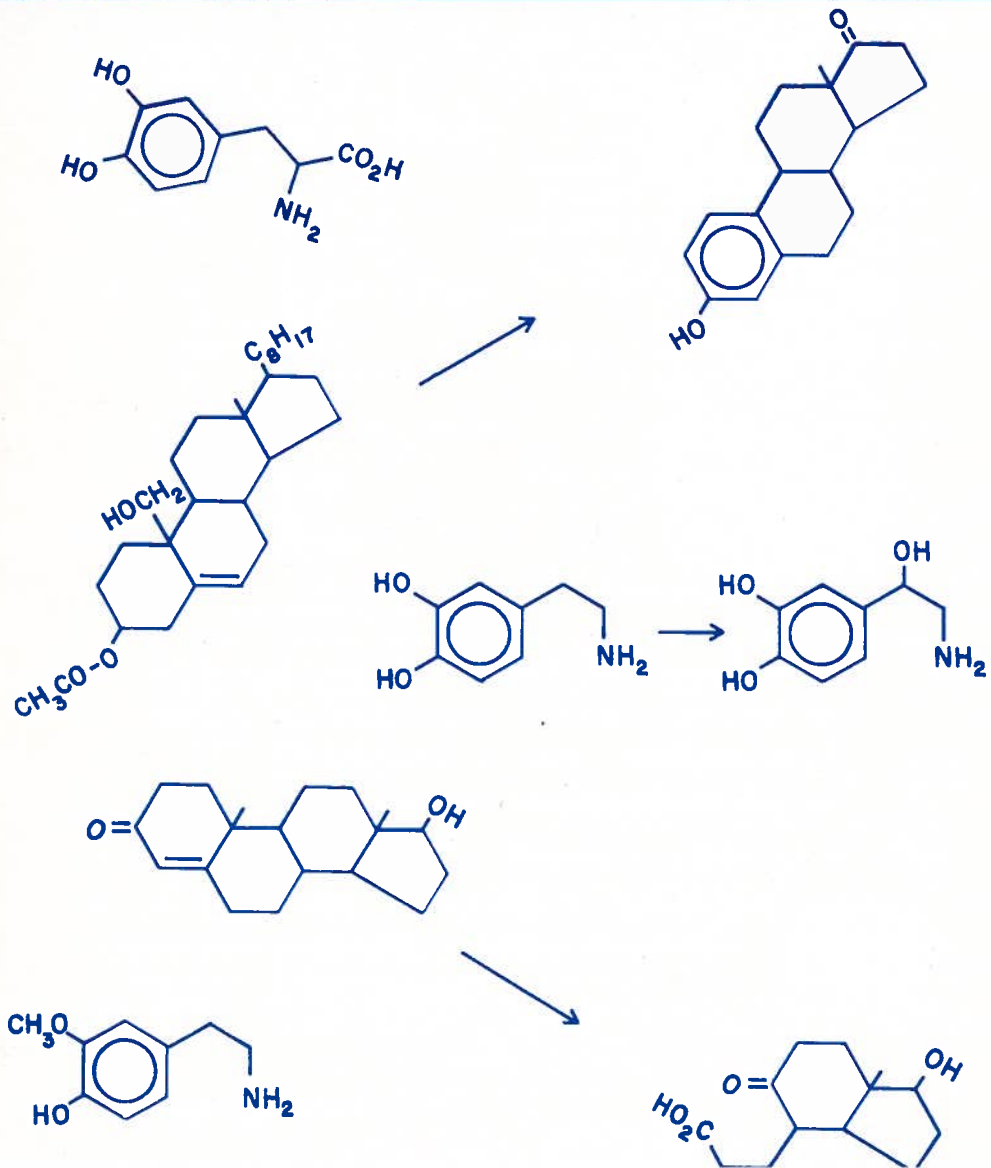
THE CHESAPEAKE CHEMIST

MARYLAND SECTION
AMERICAN CHEMICAL SOCIETY

VOL. XXVII

FEBRUARY, 1971

NUMBER 2



A "COLLECTOR'S" ITEM

For Collecting Polluted Water Samples

— also for transporting and storing



MBCO 3512 ROUND POLYETHYLENE BOTTLES,
Narrow Mouth. With closure.

Cap. ozs.	1	2	4	6
No. in case	72	72	72	72
Each	\$.18	.18	.24	.30
Doz.	\$ 1.75	1.80	2.40	2.95

Cap. ozs.		8	16	32
No. in case		72	48	24
Each	\$.34	.47	.84
Doz.	\$	3.35	4.70	8.40

Cap. gals.		1/2	1	2
No. in case		6	6	6
Each	\$	2.00	2.55	4.45

Cap. gals.		5	6 1/2	13
No. in case		4	4	4
Each	\$	8.60	10.60	16.30

Less 10% in case lots.

OTHER "COLLECTOR'S" ITEMS are available in various plastics including autoclavable polypropylene, and in wide mouth, rectangular and square configurations.

See your Macalaster Bicknell representative.



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

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

Area Code 609—825-3222



THE CHESAPEAKE CHEMIST

VOL. XXVII

FEBRUARY, 1971

NUMBER 2

EDITORIAL STAFF

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

James Leslie Associate Editor
University of Maryland
Baltimore, Md. 21201
Phone: 955-7440

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

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

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

J. F. Lemp, Jr. Contributing Editor
Fort Detrick, Frederick, Md.

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

BUSINESS STAFF

Yale H. Caplan *Business Manager*
Merle I. Eiss *Advertising Manager*
Sandi A. Kellman... *Business Office Sec.*
Surgical Research Department
Sinai Hospital of Baltimore, Inc.
Baltimore, Md. 21215
Phone 301-367-7800, ext. 8695

February Meeting 5

Dr. R. M. Burgison, Biography and
Précis of Talk 6

Dr. K. Hofmann 7

Drug Symposia 8

Editorial 9

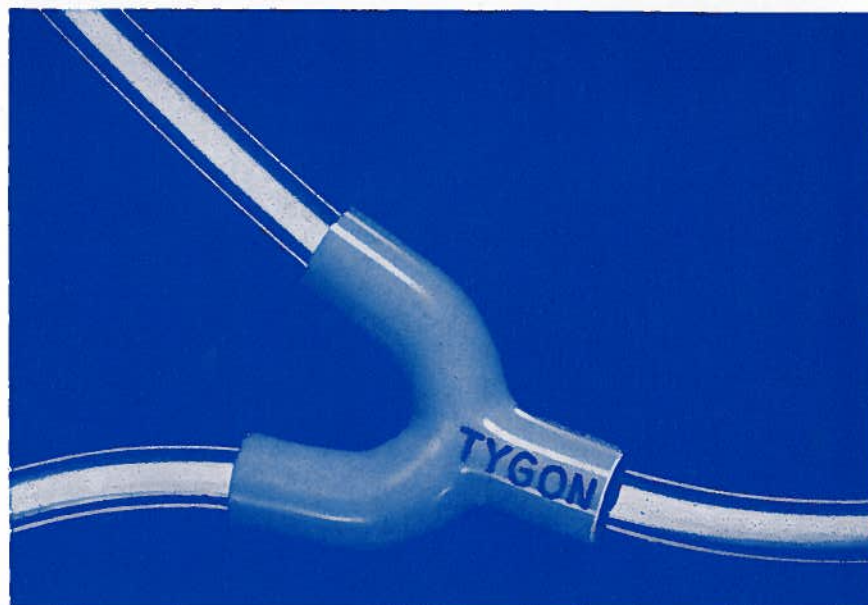
Chromatography Course 10

MEMBERSHIP CHAIRMAN

John L. Kolbe
W. R. Grace & Co.
Clarksville, Md. 21029

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 plates to Merle I. Eiss, Sinai Hospital of Baltimore, Inc., Belvedere Ave. at Greenspring Ave., Baltimore, Maryland 21216.

FEBRUARY, 1971



TYGON[®] HAS CONNECTIONS

Flexible and unbreakable, TYGON "Y" CONNECTORS are made in 8 standard sizes from 3/16" to 1-1/4" ID.

And don't forget . . .

Day in and day out, TYGON clear, flexible plastic Tubing proves over and over again that it's your best lab tubing buy.

32-244

Available through your Authorized Tygon Distributor

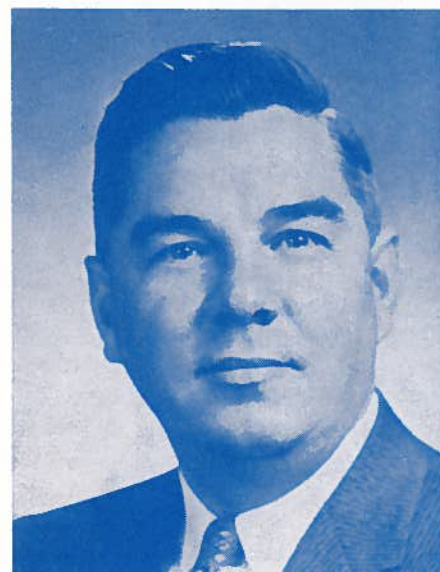
Write for information

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

FEBRUARY MEETING

DRUGS AND BIOCHEMISTRY

COCKTAILS AND DINNER:



RAYMOND M. BURGISON

Eudowood Gardens Dining Room. Price is \$4.75 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, no later than February 12. 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. You are invited to bring your wife and friends to both the dinner and the meeting.

DATE:

WEDNESDAY, FEBRUARY 17, 1971.

PLACE:

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

SPEAKERS AND TOPICS:

5:30 P.M. Dr. Raymond M. Burgison, Univ. of Maryland. "Molecular Modification in Drug Research".

8:30 P.M. Dr. Klaus Hofmann, Univ. of Pittsburgh, "Biocatalysis, a Challenge for Chemistry".

SOCIAL HOUR:

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



KLAUS HOFMANN

RAYMOND M. BURGISON

A native of Baltimore, Dr. Burgison received his Bachelor's degree in chemistry from Loyola College in 1945. After several years industrial experience, he received his Master's degree in Pharmaceutical Chemistry (1948) and Doctor of Philosophy from the University of Maryland, School of Pharmacy, in 1950. In 1948 he held the Ohio Chemical Co. Fellowship in Anesthesiology, and in 1949 the Eli Lilly Fellowship in Pharmacology at the University of Maryland, School of Medicine, Department of Pharmacology. In 1950 he was appointed Assistant Professor of Pharmacology in the School of Medicine. Dr. Burgison was promoted to Associate Professor of Pharmacology in 1956, and Professor of Chemical Pharmacology in 1963. In 1967 he was appointed Professor of Pharmacology and Chairman of the Department of Pharmacology in the School of Dentistry of the University of Maryland. Dr. Burgison has held post-doctoral fellowships at Baylor University, School of Medicine, and the Massachusetts Institute of Technology.

Dr. Burgison's research interests have been in the field of Cancer Chemotherapy, Psychopharmacology, and agents used in the control of pain. He and his students have synthesized more than two thousand compounds for study as anticancer agents. For many years he has been a special consultant to the National Cancer Institute, and from 1962-1966 he was a member and Chairman of the Committee on Chemistry and Pharmacology of the National Institutes of Health, Psychopharmacology Service Center. He is a member of the American Chemical Society (Chairman, Maryland Section 1959), AAAS, the American Society for Pharmacology and Experimental Therapeutics, and several other professional societies.

MOLECULAR MODIFICATION IN DRUG RESEARCH

The development of modern drug therapy has largely resulted from molecular modification of drugs derived from plants, animals and microorganisms.

When a chemical substance obtained from one of these sources is found to have pharmacologic activity, the medicinal chemist attempts to determine the structure of the compound and to make chemical modifications in the structure. These modifications may result in increased activity, decreased activity or loss of activity. The substance may be a simple one, such as acetylcholine, or a more complex molecule such as morphine. Occasionally structural modification may convert the compound into a blocking agent—a drug that blocks some of the actions of the parent compound. Such a blocking agent may be an antidote for poisoning caused by overdosage of the parent compound. A good example of this type of molecular alteration is Nalorphine (N-allyl-nor-morphine) which is used for treating respiratory depression brought about by an overdose of morphine or a morphine-like drug.

When the structure of an active compound is determined (or partially determined), the medicinal chemist looks for functional groups (alcohols, aldehydes, amines, carbonyls, acids, etc.) which may be altered or replaced by another similar grouping; or for alkyl, aryl, carbocyclic and heterocyclic rings which may be altered or exchanged. Sometimes a slight alteration in structure may enhance the activity of a compound (chlorothiazide vs hydrochlorothiazide) or obliterate the activity of a compound (codeine vs dimethylmorphine).

In this talk the author will attempt to illustrate molecular modification by referring to the structures mentioned in the above paragraphs and describe some of the amazing discoveries that have been made among compounds that have not been found in nature (sulfonamides, etc.).

COPY DEADLINE

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

KLAUS HOFMANN

Dr. Klaus Hofmann is Commonwealth Professor and Director of the Protein Research Laboratory, University of Pittsburgh, School of Medicine. His primary interests are the chemistry and biochemistry of biologically important natural products.

Dr. Hofmann received his graduate training under L. Ruzicka at the Federal Institute of Technology in Zürich, Switzerland, where he graduated in 1936 with the Ph.D. degree. He stayed at the Institute as a Research Assistant and Lecturer in Organic Chemistry until 1938 when he was the recipient of a Rockefeller Fellowship which brought him to the Rockefeller Institute for Medical Research in New York to work with the late Max Bergmann. After two years on this fellowship, he joined the Department of Biochemistry at Cornell Medical College in New York where he collaborated with Vincent du Vigneaud on the isolation and structure proof of biotin. After a two-year residence as a scientific guest at the laboratories of Ciba Pharmaceutical Products, Inc., in Summit, New Jersey, he joined the staff of the Chemistry Department at the University of Pittsburgh in 1944 where he held the ranks of Assistant Professor, Associate Professor and Research Professor. He was appointed Chairman of the Biochemistry Department in July of 1952 and held that position until September of 1964 when he assumed his present duties.

Dr. Hofmann is the author of some 160 scientific papers dealing with steroid hormones, terpenes, pienes, vitamins (biotin and oxybiotin), vitamin analogues, polypeptides, proteolytic enzymes, bacterial fatty acids, synthetic pituitary hormones, partially synthetic ribonucleases and ACTH receptor. He published two monographs entitled, "The Chemistry of Imidazoles", Interscience Publishers, New York (1953), and "Fatty Acid Metabolism in Microorganisms", John Wiley and Sons, New York (1963).

Dr. Hofmann is a member of the National Academy of Sciences, the American Chemical Society, the Ameri-

can Association for the Advancement of Science, the Swiss Chemical Society, the American Association of Biological Chemists, and the Society for Experimental Biology and Medicine. He served as a member of the Biochemistry Study Section of the National Institutes of Health and has served on the NSF panels evaluating National Science Foundation predoctoral fellowship winners. He was an editor of the *Journal of Biological Chemistry* from 1960 to 1965 and served on the Scientific Review Committee of the Health Research Facilities Branch of the National Institutes of Health. Beginning July 1, 1970 he began serving a four year term on the Advisory Council for Health Research Facilities of the NIH.

Dr. Hofmann received the 1962 Pittsburgh Award of the Pittsburgh Section of the American Chemical Society and was the recipient of the Borden Award and the Chancellor's Medal in 1963.

In 1962 he was the Squibb Lecturer at Rutgers University and was the 1963 DuPont Lecturer at the University of Pennsylvania Medical School. In December of 1963 he delivered the Harvey Lecture at the New York Academy of Medicine and in 1964 delivered the Reilly Lecture at Notre Dame University. He presented a plenary lecture to the German Physiological Chemists' Society in Cologne, Germany, in October of 1964 and delivered the 70th Hanna Lecture at Western Reserve University in April of 1965. On October 19, 1965 Dr. Hofmann was awarded the Myrtle Wreath Award by the Pittsburgh Chapter of Hadassah. In March of 1966 Dr. Hofmann presented the Venable Lecture at the University of North Carolina.

ORGANIC MICROANALYSES

GALBRAITH
LABORATORIES, INC.

P. O. Box 4187
Knoxville, Tenn. 37921

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

COMMUNITY COLLEGE DRUG SYMPOSIA*

The Maryland Council for Community Services and the Maryland State Drug Abuse Authority sponsored a series of symposia in 1970 on drug abuse. These were held at eleven community colleges. The purpose was to create an adult awareness of many facets of the drug problem in communities today. A description of the program was given in the May 1970 issue of the *Chesapeake Chemist*. Recently, the Community Colleges of Maryland Consortium published a report evaluating the 1970 effort. Some of the highlights of the report follow.

In general the attendance at each college was much less than expected. At the time of the symposia the news media had been especially active in bringing to the public the growing concern of drug abuse. It is felt that the public had become weary of hearing about drugs.

A very successful aspect of the program was the printing and distribution of a booklet entitled, *What is Drug Abuse*. It was most complete in its treatment of the what, who and why of drug abuse. Identifications were made of the various types of drugs, their physical and mental effects and terminology—both medical and popular in describing drugs. Forty thousand copies were distributed throughout the State.

At one of the presentations David N. Nurco, Commissioner, Drug Abuse Authority, concluded from his federally funded study conducted in Maryland, that for the time being at least, law enforcement personnel and drug addicts are really the only experts on drug abuse. When the teenage problem was pursued, it was pointed out that there is no package of drug abuse cure. We are currently at a loss for effective treatment programs.

It was pointed out that there are approximately 100,000 addicts in this country. In the State of Maryland guesses range from 3,000 to 18,000 addicts. The Baltimore Metropolitan Area has moved from seventh to fourth place in the nation's number of hard core addicts.

It was emphasized that physicians and specialists in the area must not only continue to increase their technical and scientific knowledge, but must be cognizant of the social implications involving the drug addict. It was stressed that many of the factors leading to drug experimentation could be reduced through better communication in the home by the informed parent. Educators in the schools must view their pupils realistically, for a large percentage have already or are now experimenting with drugs.

Concern was voiced that society and crime were being treated rather than the individual. Case in point: the use of the maintenance program to keep addicts off the streets and to cut down on the crime which arises from their need for money; the program has not proven to be a cure for the individual.

Some clinics already exist in our communities and others are underway. The clinic can provide consultation services either on a walk-in basis or by appointment in the home. The Symposium brought out the fact that there was still a great need for more facilities and programs. There is also a need for literature on where to seek help and literature to expose the young pupil to drug facts.

The response to the community colleges' program was gratifying in terms of the depth of concern by people from many disciplines. However, among other things it became obvious that the professionals could not agree as to remedy and dangers of drug abuse.

The question was raised as to whether the individual, society, the economy and/or crime should be treated in connection with the drug abuse problem. The answer to this question, an agreement as to the method of treatment and the cooperation of a number of agencies and organizations appears to be needed to give confidence in any proposed solutions.

* By Edward J. Poziomek, who represented the Section as a local advisory member of the state drug education program.

EDITORIAL

I'm sure that few members of the Maryland Section of the ACS are aware that the Section subsidizes a substantial portion of the total cost for each attendee of the monthly meetings. Present member prices are \$4.75 for non-students and \$3.00 for students and their spouses. Each dinner reservation costs the Section \$6.01. Considering this price includes free cocktails and after meeting beer and chips, we are quite confident that the ACS dinner meetings are one of the most economical scientific society gatherings in the area. We are able to keep the cost so reasonable because we can guarantee the caterer 80 attendees at each meeting. Over the past year and a half, attendance at the monthly meetings has been considerably reduced and the resultant financial burden to the Section increasingly intolerable. We make this plea to each member to seriously consider his attendance at our monthly meetings, not only for the obvious professional and social benefits, but also for the financial good of the Maryland Section of the ACS.

W.G.G.

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.

STRUCTURE PROBE, INC.
SPECIALISTS IN MATERIALS RESEARCH

**Scanning
Electron Microscopy**
with
**Non-dispersive X-Ray Analysis
and Accessories**

535 E. Gay St., West Chester, Pa.
(215) 436-5400

SYMPOSIUM IN PUERTO RICO

The New York Section ACS in conjunction with the New Jersey and Puerto Rico Sections are planning to hold their first Regional ACS Meeting outside the United States. "Metrochem '71", a four-day symposium, will be held in scenic San Juan, Puerto Rico on April 30 thru May 3, 1971. Papers to be presented will cover the following areas: Insect Control and Environment; Chemical and Petrochemical Industry in Puerto Rico; Oceanography and Marine Chemistry; Agricultural Chemistry; Chemistry and Topical Medicine; Chemistry and Population Control; Radiation Chemistry; and Nuclear Chemistry. This unique meeting offers participants the opportunity to combine the business of a professional symposium with the pleasure of family touring, as travel and lodging accommodations are being made available to members of the ACS and their families. All ACS Sections have been invited to participate. For further information, travel brochures, and abstract forms, contact Dr. Adolph J. Stern, New York Section ACS, Wagner College, Staten Island, N. Y. 10301, Telephone (212) 981-2233.

MARCH MEETING, 17th INORGANIC CHEMISTRY

POLYMER DIVISION
AMERICAN CHEMICAL SOCIETY
CHARTER FLIGHT PROGRAM

FLIGHT TO USSR AND EASTERN EUROPE—MAY 27 to JUNE 15, 1971. The Polymer Division of the ACS will sponsor a group flight to Moscow and Leningrad with stop overs in Budapest and Prague. The total cost for this program will be \$889 (for single supplement, add \$70) including airfare, ground arrangements, etc. Adequate "free time" has been built into the schedule to permit visits to universities and research institutions in the various cities. For further information write to Dr. Charles A. Garber, Structure Probe, Inc., 535 East Gay St., West Chester, Pa. 19380.

**FOUR DAY CHROMATOGRAPHY COURSE
MARCH 29-APRIL 1, 1971
THEORY AND PRACTICE OF CHROMATOGRAPHY**

Presented by: The Washington Chromatography Discussion Group

Sponsored by: The American University, Department of Chemistry,
Massachusetts and Nebraska Avenues, NW,
Washington, D. C. 20016

PURPOSE:

The course is designed to benefit those with a limited amount of experience in chromatography as well as those new to the field. Although the most recent developments will be emphasized, the course is not a research conference for experts. The material will be of interest to those working in the laboratory as well as to supervisory personnel interested in evaluating the techniques.

COURSE DESCRIPTION:

Lectures and laboratory sessions will cover basic principles and practices of liquid, thin layer and gas chromatography. The presentation of fixed concepts rather than mathematical derivations will be emphasized. Two days will be devoted to gas chromatography and one day each to liquid and thin layer chromatography.

ENROLLMENT:

The total number of students is limited. Applications will be accepted in the order received. Enrollment may be made by individuals or organizations. Any number of persons from a single organization may enroll as long as there are vacancies. Upon receipt of a written or a telephone request, a place in the short course will be reserved for those who require time to obtain authorization. Please write for application forms and housing (if desired) to: Dr. Mary Aldridge, Department of Chemistry, American University, Massachusetts and Nebraska Avenues NW, Washington, D. C. 20016.

FEES:

Application for enrollment may be made for any part of the course. The fee is \$30 per day and includes luncheon and "Certificate of Completion."

..... Tear-Out Dinner Reservation Form

There is enclosed \$..... (\$4.75 per person)* for cocktails and dinner at Eudowood Caterers, Eudowood Plaza, on Wednesday, February 17, 1971 for the following persons.**

<u>Name</u>	(Please Print or Typewrite.)	<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 February 12.

You're invited to a demonstration of an entirely new concept in GC/MS instrumentation

The MAT 111 Gnom, a compact, low-cost, completely integrated gas chromatograph/mass spectrometer system coming your way soon aboard the Varian Mobile Mass Spectrometry Laboratory.

For specific place, date and time, contact:

4701 Lydell Drive
Cheverly, Maryland 20785
Phone: (301) 772-3683



varian/MAT

611 hansen way / palo alto, california 94303

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

Mr. William J. Vanco
Kenwood Senior High School
Stemmers Run Rd. & Marlyn Ave.
Baltimore, Md. Permit No. 2917

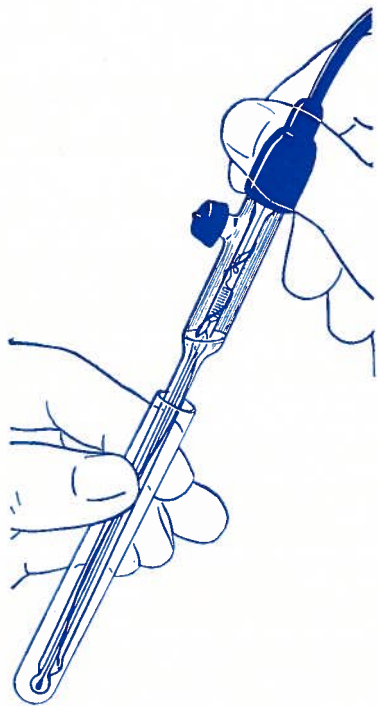
Nonprofit Org.
U.S. Postage
PAID

PLEASE DO NOT DELIVER AFTER DATED NOTICE INSIDE 221

Thomas **fast response, low resistance . . .**

COMBINATION pH ELECTRODES

- For samples from 0.2 ml to a tankful
- Ideal for titrations*—compact size



Consisting of a glass electrode and a silver-silver chloride reference electrode sealed into a single body. Bulb wall thickness and strength provide a sturdier electrode than heretofore available. Electrodes are 6 inches long. Upper section is $\frac{1}{2}$ -inch diameter. Stem is $\frac{1}{4}$ -inch diameter over lower 4-inch length.

Narrow stem permits use with samples as small as 0.2 ml, as well as with larger quantities.

The stable, fast response of this low resistance glass electrode and the short fixed distance between it and the reference electrode junction make it particularly valuable in avoiding endpoint overshooting in electrometric titrations.* Permits use of small vessels and leaves more room for stirrers and buret tips. Can be used with samples as small as 0.2 ml in narrow tubes.

Glass electrode connector fits most pH Meters, either directly or through adapters.

4858-L15. Combination Electrode, Thomas, as above, 6 inches long, range pH 0 to 12, 0 to 75°C, with 30-inch shielded lead 40.00
4858-L60. Ditto, pH 0 to 14 43.00

*See Malmstadt and Piepmeier, *Analytical Chemistry*, Vol. 37, No. 1, p. 34

Detailed bulletin sent upon request



ARTHUR H. THOMAS COMPANY

Scientific Apparatus and Reagents

VINE STREET AT 3RD • P. O. BOX 779 • PHILADELPHIA 5, PA., U. S. A.