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CHEMIST**

MARYLAND SECTION
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MAY, 1973

NUMBER 5

Presented to
Frank H. Westheimer

on the occasion of his

Remsen Memorial Lecture

sponsored by

*The Maryland Section of the American
Chemical Society*

in memory of

Ira Remsen

Teacher, Investigator, Author, Administrator

May 23, 1973



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THE CHESAPEAKE CHEMIST

THE REMSEN MEMORIAL LECTURE

DATE AND TIME:

Shaffer Hall, Homewood Campus, The Johns Hopkins University.
Wednesday, May 23, 1973 at 8:30 P.M.

SPEAKER:

Dr. Frank H. Westheimer
Professor
Harvard University

SUBJECT:

"Phosphate Esters In Chemistry and Enzymology"

COCKTAILS AND DINNER:

Johns Hopkins University
Faculty Club, Ladies
Dining Room.
Cocktails 6:00 P.M.
Dinner 6:30 P.M.
Price: \$7.50 (open bar)

Reservations must be made with:

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by

May 11, 1973



Dr. Frank H. Westheimer

SOCIAL HOUR:

Refreshments will be served in the Garrett Room, Eisenhower Library, after the lecture. All are welcome.

PARKING:

Free parking is available in the lot adjacent to Shriver Hall.

IMPORTANT

Advance Reservations
Must Be Made

DR. F. H. WESTHEIMER

Frank H. Westheimer was born on January 15, 1912 in Baltimore. He received his B.A. from Dartmouth in 1932 and his Masters (1933) and his Ph.D. (1935) from Harvard. His doctoral research was conducted by J.B. Conant (for one year until he became President of Harvard) and E.P. Kohler. He is also the holder of an honorary D.Sc. degree from Dartmouth (1961). In 1935-36, Dr. Westheimer was a National Research Fellow at Columbia under the sponsorship of Professor L.P. Hammett. The following year, he was appointed Research Associate at the University of Chicago and later was promoted to Instructor and Assistant Professor. During 1944-45, Dr. Westheimer was a Research Supervisor at the Explosive Research Laboratory of the National Defense Research Committee. This work resulted in his being awarded the Army-Navy Certificate of Appreciation and the Naval Ordnance Award. In 1946, he returned to the University of Chicago as Associate Professor and was promoted to Professor in 1948. He returned to Harvard as a visiting Professor during 1953-54, was appointed Professor in 1954 and served as Chairman of the Department 1959-62.

Dr. Westheimer has served two terms as an Associate Editor of the Journal of Chemical Physics and from 1959-69 was a member of the Editorial Board of the Journal of the American Chemical Society. He has delivered the Harrison Howe Lecture at Rochester (1954), the Stieglitz Lecture at Chicago (1956) and the Morrell Lectures in Cambridge (1962, where he was an Overseas Fellow of Churchill College. He has also delivered the Centenary Lecture of the Chemistry Society (1963), the Follers Lectures at Wisconsin (1963), the Baker Lectures at Cornell (1964), the William Lloyd Evans Award from Ohio State (1967), the Priestly Lecture Series at Pennsylvania State University (1968), the Morris S. Kharasch Lectures at Chicago (1969) and the Fourth David Rivett Memorial Lecture at Canberra, Australia (1969). He held a Guggenheim Fellowship during 1962-63 and was the recipient of

an American Chemical Society Petroleum Research Fund Award (1963). In 1970, he received the James Flack Norris Award in Physical Organic Chemistry and the Willard Gibbs Medal Award. He is a member of the National Academy of Sciences (elected Councillor, NAS, April 1972) and in 1964-65 chaired the National Academy of Sciences' Committee for the Survey of chemistry. He also served on the President's Science Advisory Committee from 1967-71.

His research interests have included calculations of electrostatic effects and of steric effects in organic chemistry, the determination of the mechanisms of chromic acid oxidation, enzymic and metal-ion promoted decarboxylation, biochemical oxidation-reduction reactions which require diphosphopyridine nucleotide as coenzyme, and the mechanism of the hydrolysis of phosphate esters.

PHOSPHATE ESTERS IN CHEMISTRY AND ENZYMOLOGY

Phosphate esters comprise the major chemical intermediates in cellular metabolism, and supply the major mode of transfer of chemical energy in metabolism, as well as constituting the backbone of the genetic molecules of ribo- and deoxyribonucleic acids. Numerous chemists and biochemists have therefore sought to elucidate the mechanisms for the hydrolysis of phosphate esters and for phosphorylation. Recently, the intimate details of some of these processes have been developed in research that showed that, in many hydrolytic processes, a pentacovalent derivative of phosphorus is formed as an essential intermediate, and that to complete the hydrolytic process, this derivative may, and in some instances must, undergo "pseudorotation", an internal interconversion of bonds that is familiar in the chemistry of transition metals but has no parallel in carbon chemistry. Now, in unpublished work, an intermediate ("monomeric metaphosphate") has been prepared of a type that may also participate in some phosphorylation procedures. Some speculation will be offered concerning the role of these intermediates and processes in enzymology.

MEMBER ADVISORY BOARD

WHAT IT IS AND HOW IT WORKS . . .

The creation of a *Member Advisory Board* was suggested to the ACS Board of Directors by the Younger Chemists Task Force. The ACS Board approved its establishment in December, 1971 (See C&EN, January 31, 1972).

MAB OBJECTIVE

To offer an opportunity for direct input of member suggestions and for monitoring action on those suggestions, thereby giving the ACS direct member guidance and involvement in the activities and directions of the Society

HOW IT WORKS

1. Any ACS member submits a specific suggestion.
2. A preliminary review is made by the executive committee of the *MAB*.
3. If the idea is reasonable and the member submitting it agrees to work in developing it, he becomes a member of the *MAB* for one year.
4. All *MAB* members present at national meetings have an opportunity to meet, but the essential work of the *MAB* is done by correspondence.
5. When the idea is fully developed it is referred, as a final proposal, to an appropriate existing ACS Board or Council Committee.
6. The *MAB* executive committee monitors the action of the ACS committee to which the final proposal was referred and informs the *MAB* of all action taken.

Results of the 1972 MAB Suggestions

Over 100 reasonable suggestions were received from 63 members

Of these suggestions

32 were considered by ACS committees and staff.

8 are presently being considered

14 caused a direct change or contributed to a change in some phase of ACS

19 are being experimentally tested.

43 received assistance from *MAB*.

20 were already a reality in the ACS.

15 were judged, not feasible, at this time

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THE AMERICAN CHEMICAL SOCIETY'S PEP PROGRAM

Now that the rheumy-eyed season is mostly past, it is time to take a clearer look at professionalism in the ACS as embodied in the PEP program.

For reasons that reside in personalities and philosophies, the PEP program was initiated in an atmosphere of rotund rhetoric. A minority of us on the PEP Steering Committee were concerned that a sloganeering approach coupled with vaguely defined objectives would turn off many potential supporters. This may have happened.

Sticking to slogans for a moment, there are a number of things the PEP program is:

- an expansion of existing efforts toward improvement of the chemists' professional lot
- new programs designed to further the entire profession of chemistry
- a program to assist in re-employment of some of your fellow chemists
- a sincere effort to effect some long needed adjustments in ACS priorities
- an effort that will cost you less than a fifth of Scotch per year

Equally important, there are some things that the PEP program is not:

- not an empire building fund
- not an expedition into unionism
- not a slush fund for Al Nixon
- not an anti-establishment drive
- not a wild exploration into the strange
- not something that can be done "for free"

In 1972, the PEP program was funded to the extent of a \$100,000 loan by the Board of Directors of the ACS. It was anticipated that contributions would be sufficient to maintain this rate of extra expenditure for several years. With these funds, the reality of the PEP program comes out like this:

1. A summary of significant advances in chemistry for the year 1972 written in non-technical language: "Chemistry in 1972" is designed for distribution to science writers, government personnel, and other interested lay persons.
2. A one-minute TV shot along the same line, the subject selected for probable public interest.
3. A weekly "legislative alert" on bills introduced in Congress with distribution to staff and appropriate Board and Council committees.
4. Consultation with government agencies on the bills considered to be of interest to science.

5. A task force established to evaluate the chemical aspects of the national energy problem. A report along the lines of the pollution study will be issued.
6. A tabulation and analysis of employment parameters is underway in an attempt to give prospective employees a feel for the relative value of various benefit packages.
7. An estimate of future chemistry manpower requirements is underway. It is possible that a preliminary report will be made at the Dallas meeting.
8. When staff becomes available, a more thorough investigation of mass lay-offs and guideline compliance will be instituted.
9. Twenty-five members requested and received assistance in working out employer-employee problems last year. A greater number of assistance cases are expected for 1973. As indicated in an earlier article, the Professional Relations Committee previously handled most of these cases, but they are swamped.
10. Members can now use a toll-free telephone line to consult on employment problems with the ACS staff.
11. A free resume service has been set up for unemployed members.
12. Employment seminars have been conducted at national and many regional meetings, in areas having mass lay-offs and in areas of high unemployment when requested by local sections.

There are several other related items in the planning stage, but they will remain plans until more funding is available.

This then is the PEP program, a rather well defined and meaningful effort that frankly started out with considerable fuzz. Solicitation to support PEP will be brought to a close by midyear. It deserves your support.

E. R. Shepard, Councilor
Indiana Section

1973 SECTION DUES

1973 SECTION DUES - each member of the Maryland Section of the A.C.S. received his dues notice in last month's Chesapeake Chemist. Remember that the local dues help to support the monthly meetings, the Maryland Section Award and other activities. Additionally, each member is given the option of making a separate \$1.00 contribution to the support of the Remsen Memorial Lecture Award. Although there is no deadline for payment of the dues, you are urged to remit the payment as soon as possible to Mr. Allen Bednarczyk, McCormick & Co., Inc., 204 Wight Ave., Hunt Valley, MD 21031.

1973 QUESTIONNAIRE

1973 QUESTIONNAIRE - along with the dues notices, each member received a questionnaire. This questionnaire was designed to give us a better indication of interests of our members. This questionnaire will influence future monthly meeting programs and help us up-date our mailing lists so that we can reach the maximum number of interested chemists. Your cooperation in completing and returning the questionnaire will be appreciated.

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The Editor and Staff of the *Chesapeake Chemist* thank all those who contributed to the Chemist during the past year, and wish all the members a pleasant summer.

COVER
 Facsimile of the scroll
 to be presented to
 Dr. Frank H. Westheimer

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

28th REMSEN MEMORIAL LECTURE WED. May 23, 1973
 Cocktails 6:00 P.M. Dinner 6:30 P.M. Faculty Club
 (Roast Beef) J.H.U.

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