



The
**PUGET SOUND
CHEMIST**

*Bulletin of the PUGET SOUND SECTION
of the AMERICAN CHEMICAL SOCIETY*

REGIONAL MEETING ISSUE



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JUNE, 1951

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While making solutions, add Potassium Hydroxide slowly to surface of solution to avoid violent spattering.
In case of contact, immediately flush skin with plenty of water and wash with vinegar; for eyes, flush with plenty of water for at least 15 minutes and get medical attention.

POISON

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The **PUGET SOUND** **CHEMIST**

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WELCOME TO THE MEETING

The Puget Sound Section cordially welcomes all chemists and chemical engineers of the Pacific Northwest to this **Fourth Regional Meeting**. With the growth of our Society to a membership of 63,000, these regional meetings must play a larger role in the development of science and of scientists. It is through such meetings, leading to stimulation and exchange of ideas, that each one of us has been able to accomplish his part in the developments of the past and will be inspired to continue the development of science in a free world.

—**ED LINGAFELTER**, Chairman
Puget Sound Section

Editor and Business Manager—Garth Putnam, University of Washington, Seattle 5; MElrose 0630.

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EXECUTIVE COMMITTEE OF THE PUGET SOUND SECTION FOR THE YEAR 1951

Chairman—E. C. Lingafelter, University of Washington, MElrose 0630.

Chairman-Elect—C. V. Smith, Northwest Laboratories, Second Avenue and James Street, MAin 0680.

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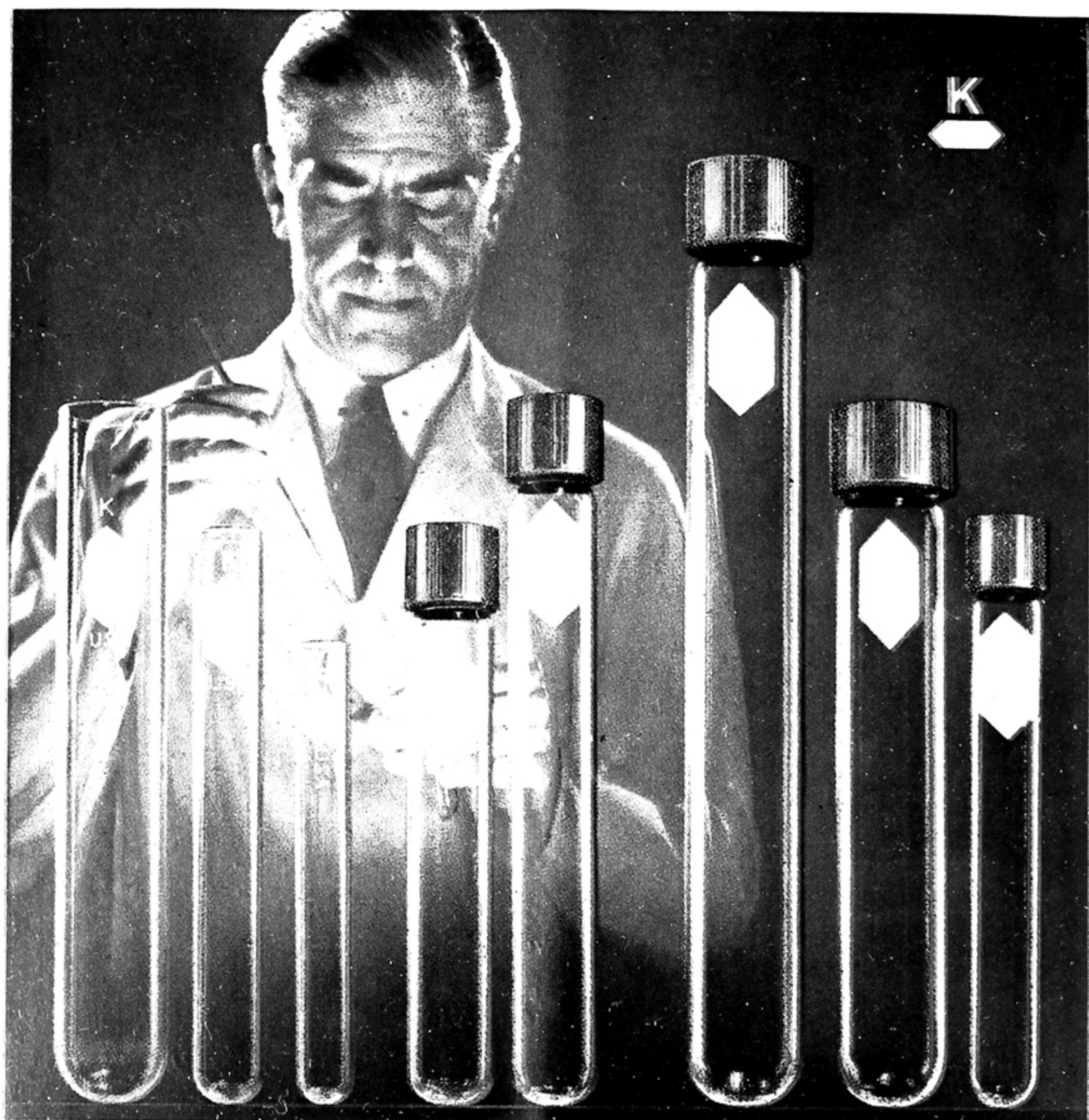
Treasurer—N. W. Gregory, University of Washington, MElrose 0630.

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Alternate Councilors—Rex J. Robinson and P. C. Cross.

Immediate Past Chairman—Collis C. Bryan.

Editor Puget Sound Chemist—Garth Putnam.



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Regional Meeting General Information

(All program schedules are based on Daylight Saving Time)

Registration: Lobby, Bagley Hall, from 8 a.m. Friday, June 8.

Divisional Sessions:

Analytical, Physical and Inorganic—Friday, 10-12, 1-5; Saturday, 9-12, 1:30-3:30

Industrial and Engineering—Friday, 1:30-4:30

Organic-Biological—Friday, 10-12, 1:30-5; Saturday, 9-12:30

Chemical Education—Saturday, 9-12

Social Hour: 5:30 p.m. Friday, Edmond Meany Hotel

Banquet: 6:30 p.m., Edmond Meany Hotel (Tickets must be purchased at time of Registration)

Address: 8:30 p.m. Friday, Auditorium of the Health Sciences Building—"Chemical Structure and Biological Activity of Proteins," by Dr. H. Neurath, Executive Officer of the Department of Biochemistry, University of Washington Medical School

Plant Trips have been arranged for both Friday and Saturday

Ladies Program: Friday and Saturday

Detailed information and registration for plant trips and for ladies' activities will be available at the Registration Desk.

* * * * *

The committees arranging for the local meeting activities are as follows:

Executive Committee: C. V. Smith, Northwest Laboratories, Chairman; J. L. McCarthy, Secretary-Treasurer

Program: D. M. Ritter, University of Washington, Chairman; A. T. Nielson, Washington-Idaho Border Section; W. N. Carson, Jr., Richland; A. H. Livermore, Oregon.

Plant Trips: R. Moffitt, Chairman; John Hine, The Borden Company

Publicity: G. L. Putnam, Jim C. Drury, R. B. Dean, R. E. Burns, E. K. Raunio

Banquet: Dirk Verhagen, Lyle Branchflower Co., Chairman

Ladies' Program: Mrs. G. H. Cady, Chairman; Mrs. V. Sivertz, Mrs. C. C. Bryan

Arrangements: A. W. Wakefield, S. G. Powell, University of Washington

PROGRAM OF PACIFIC NORTHWEST REGIONAL MEETING

(All programs are based on Daylight Saving Time)

ANALYTICAL, PHYSICAL, AND INORGANIC DIVISION

Friday Morning — Bagley Hall 131

B. S. RABINOVITCH, *Presiding*

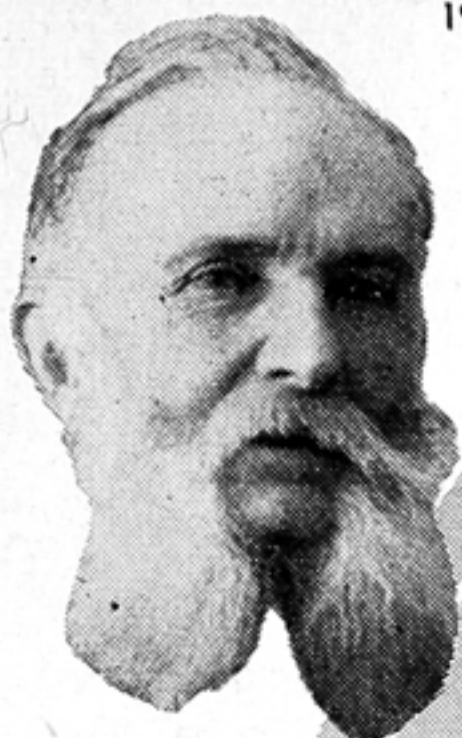
- 10:00— 1. The Vibration and Rotation Spectra of Heavy Water Vapor.
K. Keith Innes and Paul C. Cross, Department of Chemistry and Chemical Engineering, University of Washington, Seattle.
- 10:20— 2. The Vibrational Spectra of Boric and Deutero-boric Acids.
E. L. Wagner, Department of Chemistry, State College of Washington, Pullman.
- 10:40— 3. Vibrational Spectra of Hydrazine and Deutero-Hydrazine.
E. L. Bulgozdy and E. L. Wagner, Department of Chemistry, State College of Washington, Pullman.
- 11:00— 4. Hydrogenation and Exchange of Acetylene and Ethylene.
John E. Douglas and B. S. Rabinovitch, Department of Chemistry and Chemical Engineering, University of Washington, Seattle.
- 11:20— 5. Kinetics of the Reaction Between Hypochlorous Acid and Chlorine Dioxide.
H. W. Dodgen and S. I. Burghardt, Department of Chemistry, State College of Washington, Pullman.
- 11:40— 6. Decomposition of Nitrosyl Disulfonate Ion. I. Kinetic Study of the Color Fading in Acid Solution.
Jawad Hamoodi Al Murib and D. M. Ritter, Department of Chemistry and Chemical Engineering, University of Washington, Seattle.

Friday Afternoon — Bagley Hall 131

ARTHUR F. SCOTT, *Presiding*

- 1:30— 7. A Spectrophotometric Study of the Chromate-Dichromate Equilibrium.
Harry Freund and Francis W. Karasek, Department of Chemistry, Oregon State College, Corvallis.
- 1:50— 8. The System $n\text{-C}_5\text{F}_{12}$ —cyclo C_5F_{10} .
M. M. Newcome and G. H. Cady, Department of Chemistry and Chemical Engineering, University of Washington, Seattle.
- 2:10— 9. Pyrolysis of Perfluoronormalpentane.
Gail C. Rogers and G. H. Cady, Department of Chemistry and Chemical Engineering, University of Washington, Seattle.
- 2:30—10. The Pyrolysis of Hexafluoroethane.
Robert K. Steunenbergh and G. H. Cady, Department of Chemistry and Chemical Engineering, University of Washington, Seattle.
- 2:50—11. The Equilibria of Crystalline Zinc Hydroxide in Dilute Solutions of Hydrochloric Acid and Sodium Hydroxide at 25 Degrees C.
D. F. Swinehart and James W. Fulton, Department of Chemistry, University of Oregon, Eugene.
- 3:30—12. Polarographic Investigation of Complex Ions.
C. J. Nyman, Department of Chemistry, State College of Washington, Pullman.

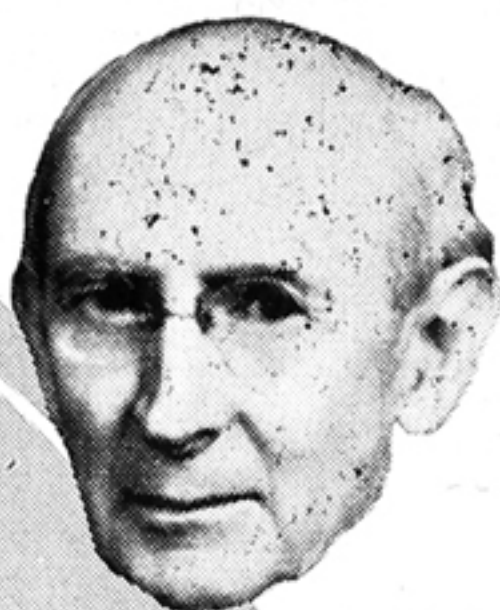
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PROGRAM OF PACIFIC NORTHWEST REGIONAL MEETING—Continued

- 3:50—13. **Polarographic Investigation of Some Complex Ions of Zinc.**
George B. Millard and C. J. Nyman, Department of Chemistry, State College of Washington, Pullman.
- 4:10—14. **The Effect of a Surface Active Agent on the Polarographic Thiosulfate Wave.**
J. A. Erickson and E. C. Lingafelter, Department of Chemistry and Chemical Engineering, University of Washington, Seattle.
- 4:30—15. **The Influence of Solvent Characteristics on Polarographic Measurements.**
J. H. Wagner, Department of Chemistry, State College of Washington, Pullman.

Saturday Morning — Bagley Hall 131

H. W. DODGEN, *Presiding*

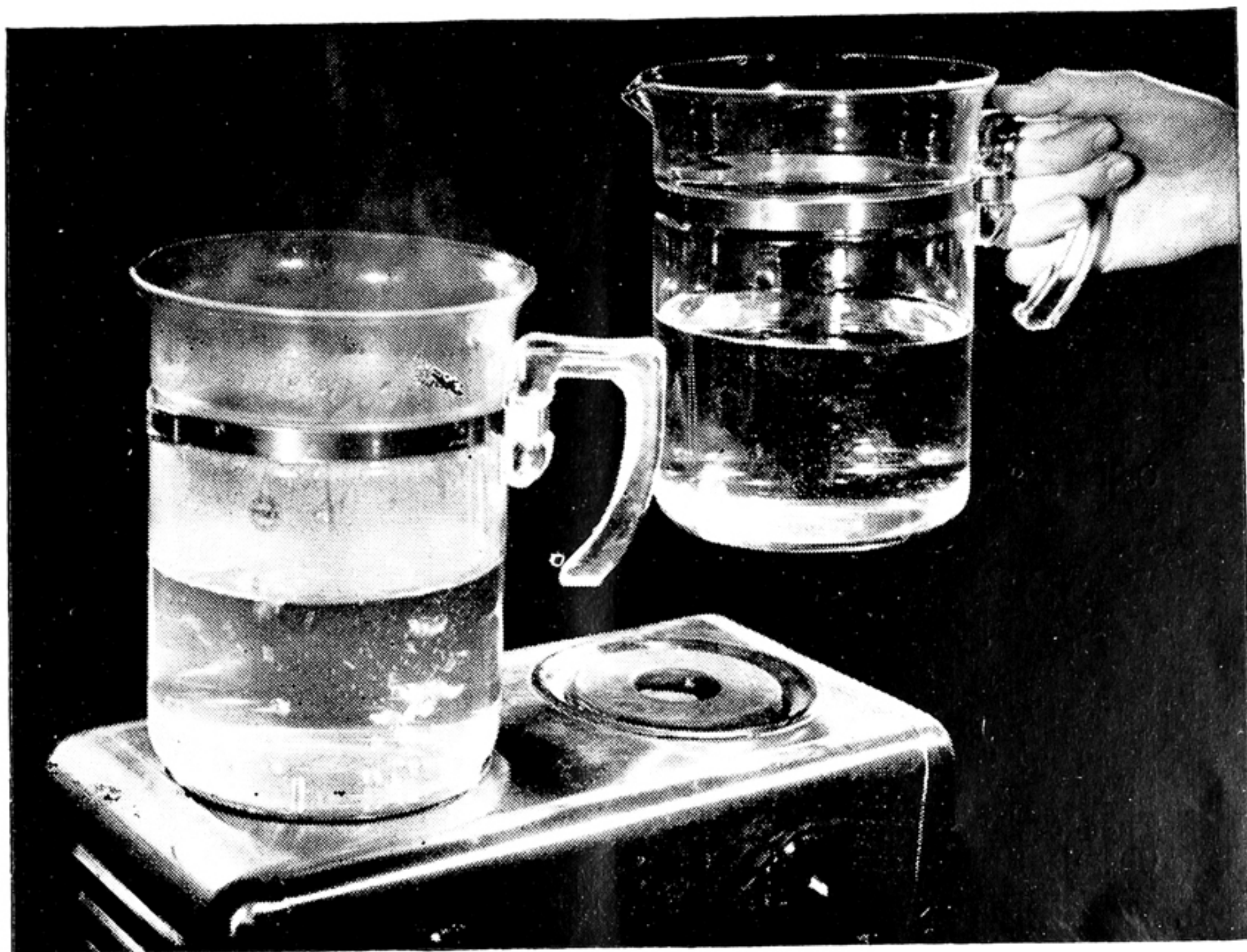
- 9:00—16. **The Quantitative Electrodeposition of Plutonium.**
H. W. Miller and R. J. Brouns, General Electric Company, Richland.
- 9:20—17. **The Mechanism of Extraction of Uranium by Tributyl Phosphate.**
Robert Lee Moore, General Electric Company, Richland.
- 9:40—18. **Removal of Iodine from Aqueous Solutions by Sparging.**
C. H. Holm, General Electric Company, Richland.
- 10:00—19. **A Rapid Method for the Determination of Radioiodine.**
Milton Lewis, General Electric Company, Richland.
- 10:20—20. **Preparation of Carrier-Free Radiozirconium from Pile-Irradiated Uranium.**
W. E. Roake, General Electric Company, Richland.
- 11:00—21. **Preparation of Carrier-Free Radioruthenium by Volatilization from Fission Product Mixtures.**
K. M. Harmon, General Electric Company, Richland.
- 11:20—22. **Preparation and Solubility of Plutonium (IV) Monobutyl Phosphate.**
Robert Lee Moore, General Electric Company, Richland.
- 11:40—23. **The Determination of Radioactive Zirconium.**
Milton Lewis, General Electric Company, Richland.

Saturday Afternoon — Bagley Hall 131

A. W. BUSHEY, *Presiding*

- 1:30—24. **The Determination of Potassium as the Periodate.**
Ralph E. Jentoft and Rex J. Robinson, Department of Chemistry and Chemical Engineering, University of Washington, Seattle.
- 1:50—25. **Polarographic Determination of Nitrite in Presence of Molybdate.**
Tung-whei Chow and Rex J. Robinson, Department of Chemistry and Chemical Engineering, University of Washington, Seattle.
- 2:10—26. **Colorimetric Determination of Boron in Aluminum: Use of 1,1-Dianthrimide.**
Dwayne A. Brewster, Kaiser Aluminum and Chemical Corporation, Spokane.
- 2:30—27. **The Colorimetric Determination of Tantalum with Gallic Acid.**
Harry Freund*, United States Bureau of Mines, Albany, and Kenneth H. Hammill, Department of Chemistry, Oregon State College, Corvallis.

*Present Address: Department of Chemistry, Oregon State College, Corvallis.



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PROGRAM OF PACIFIC NORTHWEST REGIONAL MEETING—Continued

- 2:50—28. **The Direct Determination of Several Phenyl Mercuric or Ethyl Mercuric Compounds in Dilute Aqueous Solution.**
V. L. Miller, Dorothy Polley, and C. J. Gould, Western Washington Experiment Station, Puyallup.
- 3:10—29. **A Study of Protective Colloids for the Titration of Chloride with Dichloro-fluorescein Indicator.**
R. B. Dean, W. C. Wiser, and G. E. Martin, Department of Chemistry, University of Oregon, Eugene.
- 3:30—29a. **Isotopic Exchange Reactions in Liquid Sulfur Dioxide. II. The Catalysed Thionyl Bromide—Sulfur Dioxide Exchange.**
Rolfe H. Herber and T. H. Norris, Department of Chemistry, Oregon State College, Corvallis.

INDUSTRIAL AND ENGINEERING DIVISION

Friday Afternoon — Bagley Hall 236

JOHN T. STEPHAN, *Presiding*

- 1:30—30. **Improving the Density and Strength of Charcoal Briquettes.**
Theodore Breitmayer and Frank B. West, Department of Chemistry and Chemical Engineering, University of Washington, Seattle.
- 1:50—31. **The Critical Size of a Crystal and Its Application to the Design of Industrial Crystallizers.**
N. R. Mukherjee and R. W. Moulton, Department of Chemistry and Chemical Engineering, University of Washington, Seattle.
- 2:10—32. **Mechanism of Activation of Charcoal.**
N. R. Mukherjee and R. W. Moulton, Department of Chemistry and Chemical Engineering, University of Washington, Seattle.
- 2:30—33. **The 4-Methyl-2-Pentanone-Water Azeotrope.**
C. Groot, General Electric Company, Richland.
- 2:50—34. **Lignin: Fractional Solution of Barium Lignin Sulfonates by Aqueous Ethanol Mixtures.**
V. F. Felicetta, Q. P. Peniston, and Joseph L. McCarthy, Department of Chemistry and Chemical Engineering, University of Washington, Seattle.
- 3:30—35. **A Chromatographic Study of Sulfite Waste Liquor Dialyzate.**
Quintin P. Peniston and Joseph L. McCarthy, Department of Chemistry and Chemical Engineering, University of Washington, Seattle.
- 3:50—36. **The Graves-Stambaugh Process for Processing Milk.**
Clifford E. Higer, Department of Chemical Engineering, Everett Junior College, Everett.

ORGANIC-BIOLOGICAL DIVISION

Friday Morning — Bagley Hall 140

H. S. BENNETT, *Presiding*

- 10:00—37. **Relationships of Physical Properties to Structure in the C₄₀ Carotene Series.**
J. W. Porter, General Electric Company, Richland.
- 10:20—38. **Condensation of Aldehydes with Ketones. Methylanilinomagnesium Bromide as a Condensing Agent.**
Arnold T. Nielsen, Catherine Gibbons and Cort A. Zimmerman, Department of Chemistry, University of Idaho, Moscow.

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AMERICAN CHEMICAL SOCIETY

PROGRAM OF PACIFIC NORTHWEST REGIONAL MEETING—Continued

- 10:40—39. **The Self-condensation of 3-Heptanone.**
A. T. Nielsen and Catherine Gibbons, Department of Chemistry, University of Idaho, Moscow.
- 11:00—40. **Base Catalyzed Condensation of Various Aliphatic Aldehydes with Methyl Isopropyl Ketone.**
Arnold T. Nielsen and Elwin Ovist, Department of Chemistry, University of Idaho, Moscow.
- 11:20—41. **New Methods of Preparation of 2-Cycloalken-1-ones.**
Hyp J. Dauben, Jr., Edward A. Youngman and Howard J. Ringold, Department of Chemistry and Chemical Engineering, University of Washington, Seattle.
- 11:40—42. **Steroid Ethyleneketals.**
Hyp J. Dauben, Jr., and Bjarte Loken, Department of Chemistry and Chemical Engineering, University of Washington, Seattle.

Friday Afternoon — Bagley Hall 140

R. D. SPRENGER, *Presiding*

- 1:30—43. **Kinetics of the Reaction of Thiophenoxide Ions with n-Butyl Bromide.**
Hyp J. Dauben, Jr., and Benjamin S. Baldwin, Department of Chemistry and Chemical Engineering, University of Washington, Seattle.
- 1:50—44. **The Action of n-Bromosuccinimide on Lignin Sulfonates.**
T. L. Fletcher with D. M. Ritter, Department of Chemistry and Chemical Engineering, University of Washington, Seattle.
- 2:10—45. **The Chemistry of Isochroman I. Oxidation and Nitration.**
W. L. Bean and R. D. Sprenger, Department of Chemistry, College of Puget Sound, Tacoma.
- 2:30—46. **Reaction of Gamma-bromocrotonic Esters with Magnesium.**
W. M. Schubert and Wayne A. Lanka, Department of Chemistry and Chemical Engineering, University of Washington, Seattle.
- 2:50—47. **Rearrangements Involving 2-Thenylmagnesium Chloride.**
Russell Gaertner, Department of Chemistry, University of Oregon, Eugene.
- 3:30—48. **An Acyclic-Aromatic Equilibrium.**
Russell Gaertner, Department of Chemistry, University of Oregon, Eugene.
- 3:50—49. **Aromatic Elimination Reaction. Mechanism of the Deacylation of Aromatic Ketones.**
W. M. Schubert and Harold K. Latourette, Department of Chemistry and Chemical Engineering, University of Washington, Seattle.
- 4:10—50. **The Aromatic Elimination Reaction. Decarboxylation of Hindered Aromatic Acids.**
W. M. Schubert, Jere Donohue and J. D. Gardner, Department of Chemistry and Chemical Engineering, University of Washington, Seattle.
- 4:30—51. **Elimination Reaction. Decarbonylation of Hindered Aromatic Aldehydes.**
W. M. Schubert and Roland Zahler, Department of Chemistry and Chemical Engineering, University of Washington, Seattle.

Saturday Morning — Bagley Hall 140

C. M. STEVENS, *Presiding*

- 9:00—52. **A Microbiological Assay for Vitamin B₁₂.**
R. V. Dahlstrom and A. C. Wiese, Department of Agricultural Chemistry, University of Idaho, Moscow.

PROGRAM OF PACIFIC NORTHWEST REGIONAL MEETING—Continued

- 9:20—53. **Vitamin B₁₂ and Hemoglobin Regeneration in Chicks.**
Joel R. Stern, Jen Mein Hsu and James McGinnis, Department of Poultry Husbandry, State College of Washington, Pullman.
- 9:40—54. **Lactose-1-phosphate: Preparation and Behavior in Mammary Homogenates.**
F. J. Reithel and R. G. Young, Department of Chemistry, University of Oregon, Eugene.
- 10:00—55. **Calf Intestinal Lactase.**
Roger G. Young and F. J. Reithel, Department of Chemistry, University of Oregon, Eugene.
- 10:20—56. **The Detoxifying Action of Glycine on DL Methionine Force Fed to Vitamin B₁₂ Deficient Chicks.**
B. T. H. Levadie, Joel R. Stern and James McGinnis, Department of Poultry Husbandry, State College of Washington, Pullman.
- 11:00—57. **Occurrence of D-Amino Acids in Some Natural Materials.**
Richard P. Gigger and Carl M. Stevens, Fulmer Chemical Laboratory, State College of Washington, Pullman.
- 11:20—58. **The Release of Amino Acids During Aging of Cheddar Cheese.**
J. C. Trautman, H. C. Hansen and A. C. Wiese, Departments of Dairy Husbandry and Agricultural Chemistry, University of Idaho, Moscow.
- 11:40—59. **Enzymatic Synthesis of L-leucyl-L-leucine.**
H. B. Milne and M. S. Mason, Department of Chemistry, Washington State College, Pullman.
- 12:00—60. **The Urinary Excretion of Methionine by Cancerous Mice.**
W. V. Hartwell and A. C. Wiese, Department of Agricultural Chemistry, University of Idaho, Moscow.

CHEMICAL EDUCATION DIVISION

*Jointly with Northwest Association of Chemistry Teachers
Symposium on Physical Chemistry for Premedical Students*

Saturday Morning — Bagley Hall 236

W. R. CARMODY, *Presiding*

61. **Teaching the Three R's of Theoretical Chemistry in the Elementary Course.**
A. B. Scott, Department of Chemistry, Oregon State College, Corvallis.
62. **Should the Brief Course in Physical Chemistry Be Offered?**
A. H. Kunz, Department of Chemistry, University of Oregon, Eugene.
63. **Discussion Panel.**
F.D. Ayres, Department of Chemistry, Reed College, Portland, and Victorlan Sivertz, Department of Chemistry and Chemical Engineering, University of Washington, Seattle.
64. **The Undergraduate Curriculum for Professional Training of Chemists.**
Paul C. Cross, Department of Chemistry and Chemical Engineering, University of Washington, Seattle.
65. **A Literature Search Assignment.**
R. B. Dean, Department of Chemistry, University of Oregon, Eugene.

Business Meeting of the Northwest Association of Chemistry Teachers.
(Half hour or more).

COL. KIMBLE HONORED



Col. Evan E. Kimble, 83, above, founder of the scientific glassware company which bears his name, is the recent winner of the Award for Outstanding Service of the Scientific Apparatus Makers Association. Presentation of the award, the third such in the SAMA's 33-year history, was made to Col. Kimble at the Association's recent annual banquet at White Sulphur Springs, W. Va. The honoree, cited for his continuing effort to strengthen the American scientific glassware industry, was until his retirement active in the management of Kimble Glass, now a division of Owens-Illinois Glass Co.



The little girl's family was moving east from Puget Sound. The night before the departure she was saying her prayers and she finished up thus: "God bless Mommy and Daddy and my little brother Tommy. And this is good-bye God—we're leaving Puget Sound."

—Vortex

EYRING TO VISIT UNIVERSITY OF WASHINGTON

The Department of Chemistry and Chemical Engineering of the University of Washington, Seattle, announces that Dean Henry Eyring of the University of Utah and Professor E. B. Wilson, Jr., of Harvard University, will participate in its program for the coming summer.

During the first summer term, from June 18 to July 18, Professor Wilson will conduct an informal seminar on microwave spectroscopy and deliver a series of lectures on the logic and method of scientific observation.

Dean Eyring will be visiting Walker-Ames Professor during the second summer term from July 19 to August 17, and will discuss the chemistry of life processes and lead a seminar on current topics in physical chemistry.



MINUTES OF THE 296TH REGULAR MEETING

The meeting was called to order at 8 p.m. April 27, 1951, by Dr. E. C. Lingafelter, chairman.

The speaker of the evening was Dr. D. H. Templeton of the University of California.

His lecture on "The Characterization of New Radioactive Isotopes" was illustrated with slides of California's new and old cyclotrone and the analytical equipment used in working with radioactive material.

Dr. Templeton's talk on the methods of identification and analysis of new radioactive isotopes together with his interesting explanation of the attendant problems and difficulties was thoroughly enjoyed.

After a question period, the meeting was adjourned at 9:30 p.m.

Following the meeting was a social hour.

—JIM C. DRURY, Secretary
Puget Sound Section
American Chemical Society



OREGON NEWS

Dr. F. J. Reithel, associate professor

PUGET SOUND CHEMIST

of chemistry in the University of Oregon, represented the University at a national meeting of the Federated Societies for Experimental Biology in Cleveland, Ohio, April 29 through May 4.

Dr. Rithel went to the meeting under the sponsorship of the United States Public Health Service, and as a member of the American Society of Biological Chemists, which is a part of the Federated Societies. The U. S. Public Health Service is financing research work on enzymes on this campus under Dr. Reithel.

—R. B. DEAN



SOCIAL RESPONSIBILITY

By E. R. GILLILAND

(Concluding paragraph of the award address given by Professor Edwin R. Gilliland at the A. E. Ch.E. meeting in Columbus, December 3-6, 1950. Dr. Gilliland received the Professional Progress Award in Chemical Engineering for 1950. Reprinted by permission of the author and Chemical Engineering Research.)

As engineers, we have a major obligation to our country, particularly for its defense and security. However, I am concerned over the fact that one of the main contributions of science and technology is for destructive purposes. I hope that the public does not arrive at the conclusion that the chief contribution of our field is destruction. While technically trained people are a necessity in modern warfare, I hope that we can sell the public the view that our main contributions are for the social good and not for destruction.

We should make a real effort along this line. It is not sufficient to take the viewpoint that science and technology are neutral and that the harmful effects are only in the way they are applied. To a considerable degree the different phases of technological endeavor can be differentiated as to those that are likely to make sociological improvements compared with those that will make their major effect along military lines. It is not possible to foresee the whole outcome of any technical development, but, with our understanding of human nature, developments that lead to improved living conditions, such as better housing,

better medicine, better nutrition, are much more likely to be important sociologically than is the development of long-range rockets.

While it is difficult to refuse money for an intriguing technical program, we should conscientiously consider the social implications of any work we undertake. We should concentrate our efforts along those lines which we believe will be most beneficial. It is not enough for us to take a neutral position relative to science and engineering and put the blame on others.

—From January

Chemical Engineering Progress



THE ULTIMATE DICTATOR

There's a cartoon by the New Yorker contributor, George Price, which shows a room in which all hell has broken loose; animals, people and things are mixed together into a super-bedlam. The caption, spoken by a man who is trying to be efficient, goes, "Who's in charge here?"

There is a note of pathos in his human cry, an attempt to find someone who is competent to bring order out of chaos. There must be SOMEBODY who can be appealed to who will set things in order again.

When you are a small child authority is everywhere; in parents, teachers, older children and grown-ups in general. Higher Authority resides in The President, The Government, and People In Uniforms. As you grow up you begin to question what once seemed infallible until at about eighteen parental authority has fallen miserably by the wayside, most teachers have become ordinary human beings, and there are left only the mysterious They who run the machinery of laws and politics. You go along believing in powers that Run Things, faceless ones who are governments, or big men who are the ones to pull wires and make policies.

One day you discover that the world is in what seems to be an irretrievable mess. "Who's in charge here?" you ask in despair. If you are really adult you accept the answer, although it terrifies you. Who's in charge here?—YOU are.

—Courtesy of Miniaturesque.

OUR SECTIONAL PUBLICATIONS

By OTTO EISENSCHIML

Having been called the Grandad of all sectional publications, it behooves me to keep an eye on my growing family. What I see does not fill me with bubbling enthusiasm.

The first sectional paper to assume editorial responsibility was the **Chicago Chemical Bulletin**, now the **Chemical Bulletin**. In 1914, when it was founded, the ACS had no news edition, nor did the country as a whole have any chemical magazine to cover non-scientific subjects of interest to chemists. The **Bulletin** was founded to supply this want for the Chicago Section, but it had no easy birth, and its early childhood was beset with obstacles. The chief argument made against it was that no section should be permitted to express editorial opinions which might commit the entire society to a certain policy. This argument was not too convincing, because at best these opinions would only reflect the views of one section. Even this was objected to by some, and so it was arranged to have the author of each editorial affix his initials to it, thus making him alone responsible. Then the die-hards, to whom the whole idea of a sectional paper was repugnant, raised new objections, and it was not until two years later that opposition to the **Bulletin** ceased, and that its right to carry on, and to express editorial opinions was definitely established.

It discourages me to note that most of the sectional publications which are sent me now carry no editorials at all. It pains me that a privilege, so hard fought for, should voluntarily be relinquished. Perhaps history does repeat itself. The pioneers of America went to war for the right to shape their own destiny, but to-day only one-half of the population goes to the polls. The early chemical editors were fighters, who had certain ideals in view; the majority of the present ones seem satisfied to be mere reporters. I do not consider the conventional "Chairman's Page" editorials in the sense I have in mind. Consisting usually of come-

on-fellows platitudes, they hardly deserve this designation.

Unhappily even the reporting I read is frequently below par. Take the monthly meetings, for example. I have yet to see an account of one which was not as dry as dessicated straw. I never get a vivid picture of the speaker, of the audience, or of the discussion, if any. No county gazette could report a meeting of the ladies knitting society with greater dreariness. Is there no editor with the courage to jump out of the groove and put pep into his writing?

Everyone is agreed that the sectional papers should, first of all, represent their sections. The sections in turn should consider themselves in the same relation to the national society as do the States of the Union to the Federal Government. The balance of power provided by our National Constitution should be the prototype for both. Each section should avail itself of the right to advocate, whenever it elects to do so, a position differing from that of the parent society. Furthermore, editors should not only reflect the attitudes of their sections, but lead it. To give up editorials is to give up the right for sectional thinking, and for such sectional independence as lies within the framework of the ACS constitution.

In my estimation a sectional paper should, aside from printing local news:

1. Start where **Chemical & Engineering News** leaves off, not overlap it.
2. Uphold the dignity of the profession.
3. Publish the opinions of local readers.
4. Act as a bond between the members of its section.
5. Supply feature articles for which at present there is no other forum.

Most papers which come to my desk are deficient in some of these principles, and a few in all of them. Many are simply blown-up postal cards, and bring only announcements of meetings and a bare minimum of routine items. Dignity also has been relegated to the background, to judge by the names their founders have chosen. The earliest organs were called **The Syracuse Chemist** and **The Chicago**

Bulletin. Since then we have had *The Catalyst*, *The Crucible*, and the like, titles which, while they showed a slight lowering of the standard, still preserved a certain decorum. The later arrivals, finding the field of good descriptive names depleted, had a bright idea—they would be funny. So they adopted names of a would-be humorous type, such as would be shunned by any self-respecting high-school fraternity. They seemed to forget that a joke, even a good one, is a joke only once, and that nothing is as boring as the bon mot of yesterday.

Equally depressing is the content of some publications. They are being used as dumping grounds for technical contributions which should have no place in a sectional paper. If they are meritorious, they should be published in papers with national circulation, if they are not, they should not be published at all. Papers which have been read before the section do not fall into this category, of course.

To the doleful part of my observations belongs the kind of humor in which some chemists indulge. Humorous writing, as every experienced author and editor knows, is the most difficult of all, and few can handle it successfully. Nevertheless, every amateur wants to be another Mark Twain. Read the backslapping style favored by some reporters in the *Personal* columns; I find it nauseating. Does it add to the glamour of the occasion to say that Mr. X has been passing around "El Stinkos," rather than say that the X's had another child? And does it add to the prestige of chemists to allow such tripe to get into print?

Descending into still lower regions, we meet the off-color jokes, in which some editors apparently are vying to outdo each other. Perhaps the prize will eventually go to the first who gets into trouble with the postal authorities. I have nothing at all against risque jokes, but papers representing a profession still struggling for proper recognition are not the place for them. One editor confessed to me that he trembles each time he mails one of his issues, but that his readers turn to the jokes first, and some of them do not read anything else.

I find more or less the identical jokes in all the papers, proving that our editors are not adverse to copying from each other. Why then not copy good articles, of which there is no lack? If they did, they would get more worthwhile contributions; for who does not prefer a large reading circle to a small one? Perhaps you will say that here, too, the rule should apply that all good articles should go into papers of national circulation. The two cases, however, are not parallel. Chitchats do not belong in *C&EN*, but their easy, informal style makes them highly desirable in a medium with a more homey circulation. A chemist returning from a trip to a foreign country, for instance, when writing up his experiences, can present them much more entertainingly in his sectional paper than in a big magazine, where he would have to concentrate on the technical aspects of his trip, thereby sacrificing much that makes his story enjoyable. I often read mighty good contributions in sectional papers, but I rarely see them reprinted.

No, I am not proud of my grandchildren, a few worthy ones excepted. I hardly think it necessary to identify those I consider good and those I do not. An English Queen once tried to embarrass one of the lords of her kingdom by asking him to name the three most beautiful ladies he knew.

"The first," the lord replied, "is your Majesty; the second is my wife. The third—well, the third knows very well that I mean her."

Not many editors, I fear, will reprint this outburst of mine. Anyway, how could they find room for it without deleting the jokes, the would-be poetical effusions, and other trivialities?

—Courtesy of **The Chemical Bulletin**



LIBIDO

The inner check, said the philosophy teacher, can be applied as well to our everyday lives. "Observe, for example, the fly that has just lit on the end of my nose. I don't lose my temper, I do not swear. I do not blaspheme. I merely say 'Go away, fly'—Gawdam, it's a bee!"

—Courtesy **Del-Chem Bulletin**

THE BASIS FOR FAITH IN DEMOCRACY

By MAX SCHOEN

(Excerpts from address delivered at a convention of the American Association for the Advancement of Science held on the campus of the University of New Hampshire June 25, 1941. Phi Kappa Phi Journal, March 1942; pages 29-41).

I shall begin with a definition of freedom and with a thesis about democracy in relation to human life that I propose to defend on biological and psychological grounds.

Freedom is the feeling a person has that he is safe to be himself; that he can speak as he honestly believes and act as he thinks best, on condition that he insists on the right of every individual to do likewise and provided that he is willing to be held responsible for everything he says and all he does.

Democracy is the form of social organization which proclaims, guarantees, and defends the right of every human being to life, liberty, and the pursuit of happiness, which means to conduct his life in his own way, if his way is that of a person fully conscious of his responsibilities as a social being.

My thesis is that this right of every man to his own life on his own terms is not merely a proclaimed right, but one that is deeply rooted in the very nature of animal existence in general and of human existence in particular. This being so, it follows that democracy is neither a wish nor a hope, but the only mode of communal life in which there can be peace and which can have permanence, for whatever constitutes a threat to liberty also threatens life, and life will either destroy that which obstructs its normal course or be destroyed itself.

LIFE AND LIBERTY

I turn first to a consideration of the relationship of life and liberty.

That life is identical with liberty is implied by everything that the investigation of animal things reveals about the nature of an organism versus that of a mechanism. What the science of life tells us is that an animal organism is a self-acting, self-selecting, self-adjusting, self-

developing, and self-experiencing body.

First, a living body is self-acting, in contrast with a dead body which is outer-determined in its activities. We recognize whether a body is dead or alive by observing what it does when some force is applied to it. If its responses are of a sort that indicates that they are altogether determined by the applied force, then we know it to be a lifeless body. This means that the only resistance it offers to the stimulation is its own inertia, and its activities can therefore be predicted and controlled. But when the body acts in a manner that cannot be completely accounted for in terms of the outer force, we know the body to be that of a living organism. Life is over when conformity to outer forces becomes the rule rather than the most rare exception. In any case, where there is life there is resistance, with the degree of resistance shown being the sole criterion of the degree of life present.

LIBERTY AND HAPPINESS

I have thus far attempted to show the identity of life and liberty to substantiate my thesis that whenever and wherever liberty is denied it, life will struggle to destroy the repressing and oppressing conditions, even at the risk or cost of self-destruction. I now wish to indicate that for man, because of his psychological status as a self-conscious creature, liberty is a necessity for the pursuit of happiness, the attainment of which, as Aristotle pointed out centuries ago, is the final goal of all human enterprises. To show this common ground of liberty and happiness I shall consider one of man's enterprises, namely, work, and raise the question as to the difference between a person working joyfully and laboring grudgingly.

Consider a man engaged in a game of chess on one occasion and on another in hanging the window screens. In both he is working, since work is but the exertion of effort directed towards the accomplishment of a set purpose. Nevertheless, working at chess is play, while working with the screens is labor. From hours of

strenuous concentration on chess the man arises tired but happy. But the exertion of protecting the house against insects leaves him weary, if not also grumpy. The difference between the two occupations is not in the work done, but in that of freedom versus compulsion, which is also the difference between happiness and misery. The screens had to be hung in self-defense; but playing chess was a free choice. Because the motive for play is inner, the work is self-expressive and also self-realizing. The player seeks to improve his game, and as he grows in skill he is growing in happiness. So the chess player boasts of his game, but the screen hanger bemoans his lot.

There are at least five traits of work as play, each one bearing noble testimony to the necessity of freedom.

One requisite for happiness in work is **security**. In order to be expressive in his work the worker must be free from worry about his living.

Another requisite for artistic endeavor is mental and physical **fitness**. The worker can be interested in his work only when he is capable of turning out a product of which he can be proud. And it is aptitude that generates interest, not interest that creates aptitude.

A third variable in happy work is individual **recognition**. "No more fiendish punishment could be devised," wrote William James, "were such a thing physically possible, than that one should be turned loose in society and remain absolutely unnoticed by all the members thereof. If no one turned around when we entered, answered when we spoke, or minded what we did, but if every person we met 'cut us dead,' and acted as if we were non-existing things a kind of rage and impotent despair would ere long swell up in us, from which the cruelest bodily tortures would be a relief; for these would make us feel that, however bad might be our own plight, we had not sunk to such a depth as to be unworthy of attention at all."

The worker is first a human being and second a worker, and unless the working



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conditions adhere to this psychological fact the worker cannot be happy. Industry puts the cart before the horse and does itself a disservice by its practice of valuing the product before its producer, thereby reducing the person to the status of the machine. The consequence of this is that the work is done in the manner of a machine, without regard for the quality of the work. But when the worker is made to feel that his personality is recognized and respected he will work consciously and conscientiously in order to maintain his respected position in the eyes of his fellow-workers by the excellence of his handiwork.

Men do not work for power or possessions as ends in themselves. They desire the power and the possessions in order to impress themselves with themselves by calling attention to themselves. It is a blunder to suppose that labor strikes and labor unrest have their main cause in the desire for better pay. Men band together in the interest of individual freedom through the strength of group action, and they strike in order to assert this freedom. What is wrong with the profit system is not the system itself, but the abuse of it to enslave those through whom the profit is made. No worker can or does object to having his employer make a profit on his business; but he does and must object when money has become the god to whom human life is to be offered for sacrifice.

A fourth requisite for happy work is **dignity**. The worker must be made to feel that the function he is performing is held in proper social esteem. On this point I like the statement of L. P. Jacks: "Of all the factors and forces," he writes, "that make a human being what he is for good or ill, by far the most important, the most vitally influential on his mind and character, is the daily work of his vocation—whatever that may be, from shoveling coal into a furnace to presiding over the High Court of Justice. If a man gets no culture out of his daily work, out of his vocation, he will get precious little out of anything else."

Now it is impossible for the worker to find his work cultural unless it is con-

sidered such in the culture of the group. It is therefore a vicious social habit to classify work into high and low, **noble** and ignoble, thereby fixing the social worth of a human being by his occupation. Because one is a physician, minister, engineer or teacher, he is also held to be more deserving of honor and respect than is the barber, plumber, street cleaner or ditch digger. A plumber may be several times a better plumber than is some physician as a physician, or a minister as a minister, or professor as a professor; nevertheless, the poorer physician, minister, or professor is taken to be a higher human being than is the superior plumber. By this false standard one man is thus penalized for doing a good job and another is rewarded for being a failure.

This is the reason for the rush to the so-called higher vocations, with the result that many a promising butcher, instead of cutting steaks skillfully, often wields a surgeon's knife fatally, many a promising plumber plumbs clumsily into human souls from the pulpit, and many a promising haircutter makes a botch of cutting into the mind of youth in the classroom. If some barbers would do as poor a job cutting hair as is done by some preachers and teachers they would not last a month in their trade. Yet the barber is accepted socially as being in the main a utility, a tool, thereby becoming a social slave, while the minister and teacher are respected as persons no matter how poorly the one may preach and the other teach.

Fifth and last, there is the factor of **opportunity** as an essential for self-expressive work. The worker may have security, may be vocationally well-adjusted, may receive full measure of individual recognition and may be fully conscious of the dignity of his occupation, but he will nevertheless find his work distasteful if he is oppressed by the idea that conditions will not permit him to rise above his present position. A man without the door to the future open for him is an animal at bay. An animal may have no desire to change its position; but when pinned down so it cannot move it will fight. Likewise, a man may show

no ambition for advancement, or may even refuse to take advantage of opportunities offered him to do so. But let him get the feeling that the opportunities are denied him, that he is hemmed in, and he becomes restless and disgruntled. There is nothing perverse in this manifestation of human nature. Nor is there anything paradoxical about it. We want something first when it is denied us not because the denial has served to arouse our need of it, but as an assertion of our freedom and as a protest against its abuse. The worker may be quite satisfied, and even happy with his assignment, but only so long as he does not feel himself imprisoned in it. This is the reason why the professional man who is "on his own" and knows that he rises or fails to rise by his own efforts, is far less frequently an unhappy man than is the worker in industry who is forced into the belief that there is no room for him above. Free competition is not only the life of business, but one of the business man himself, no matter what his business may be.

We are now in the midst of an epoch when the breath of liberty is not only heavy and painful, but appears to be in danger of complete extinction. But the breath of liberty can suffer no more than a temporary obstruction to its free flow, and it is as certain as is the continuation of life that a government by the people, of the people, and for the people shall not only not perish from the earth but that it will not, because it cannot, perish from the earth.

The story of group conflicts is told in the one word, **labels**. Labels are falsehoods because they divide the social body into warring factions. An individual would blush even at the thought of doing that which he does with pride under the cover of a label. For the label he is ready to steal, lie, fight, and even murder, and boast of it on the ground that the end justifies the means. The justice of the end he takes for granted for no other reason than that it bears the group label. Labels are mischievous because they create classes, and as D. H. Lawrence so aptly pointed out, "Class makes

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a gulf across which all the best human flow is lost." It does so because class distinctions have their basis in prejudices which are held in reverence by their adherents, and questioning of which constitutes treason and sacrilege. The class thus builds a roof over its shed, which it calls truth, and its leaders spend their lives keeping it in repair to prevent the real facts from leaking through.

The atrocities inherent in labels arise from the fact that when a person is known primarily by a label it is the label that is important and not the person. In this way personal worth, which is the sole condition for harmonious social existence, is lost. Each person bearing the label is valued in terms of the attitude towards the label. If we like the label then every member of it is "sugar and spice and everything nice." If we dislike it then all those who bear it are "scissors and snails and puppy dogs' tails." For the Jew, a Jew can do no wrong. For

the Christian he can do no right. For the Jew the Jew who does wrong acts like a Christian. For the Christian the Jew who does right is a different sort of a Jew, almost a Christian. The very life-blood of labels is strife, ill-will, imposition, and arrogance, for each can prosper only at the expense of rival labels.

Social labels are like trade labels. To continue is business a particular label must convince a sufficient number of persons of its superiority over its rivals. This leads to prejudice which is sugar coated so that its practitioners can parade it as a virtue. This sugar-coating is flaunted as the social virtue of toleration, which only adds to the destructive operations of labels by covering them up and thereby perpetuating them. Toleration is no virtue. We do not tolerate a good. We welcome it. We tolerate only an evil when we cannot get rid of it or when we mistake it for a good. Toleration in group relationships is a trumped-up virtue on the part of profiteers in labels to enable them to continue creating the intolerance by which labels exist. Such persons are not concerned with human welfare but only with their own profit and power, and the more that they succeed the greater is the danger of social disintegration. Social stability depends on the recognition and the practice that it is the person that matters socially and not the label, that before a person is a Jew or Christian, Aryan or Semite, yellow, black, brown, or white, poor, or rich, employer or employed, he is a human being. This is the principle on which the structure of American Democracy was erected in theory, and it is this principle carried out in practice which is our guarantee that while its natural foundations may be shaken, its walls will never crumble.



An Englishman, just returned from several years of foreign duty, dropped into his club. Only one elderly gentleman, whom he had never met, was there. Badly in need of companionship, he offered the man a cigar.

"No, thank you," snapped the old man

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"Tried one once. Didn't like it."

Somewhat rebuffed, the young man retired, but soon loneliness drove him to try again.

"Have a drink, sir?"

"No, thank you. Tried one once. Didn't like it."

Again the young man beat a retreat, but after a while decided to try just once more.

"How about a game of billiards?"

"No, thank you. Tried it once. Didn't like it. But my son will be here soon. Perhaps he will play with you."

The young man looked at the older man for a moment, then quietly remarked, "Your only child, no doubt."



JOINT MEETING OF STUDENT AFFILIATES

Student Affiliates of the College of Puget Sound and St. Martin's College held their second annual joint meeting on the campus of the Tacoma College on Thursday, May 3. After registration at 9:30 a.m. the students and their instructors listened to papers presented by Affiliates of C.P.S. during the morning session. Casein, choline, denaturation of proteins, and synthesis of compounds related to isochroman were the topics.

The afternoon program began with a tour of the St. Regis Paper Company's extensive plant, followed by a series of papers presented by students of St. Martin's College. Silicones, kinetics of selenium oxide oxidation, starch, and synthetic elastomers occupied the attention of the participants until nearly 6 o'clock.

After the dinner at Crawford's, Dr. Paul Cross, head of the University of Washington Department of Chemistry and Chemical Engineering, held the complete attention of the group for over an hour with his fascinating presentation of the composition of atmospheres on extra-terrestrial planets.

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