

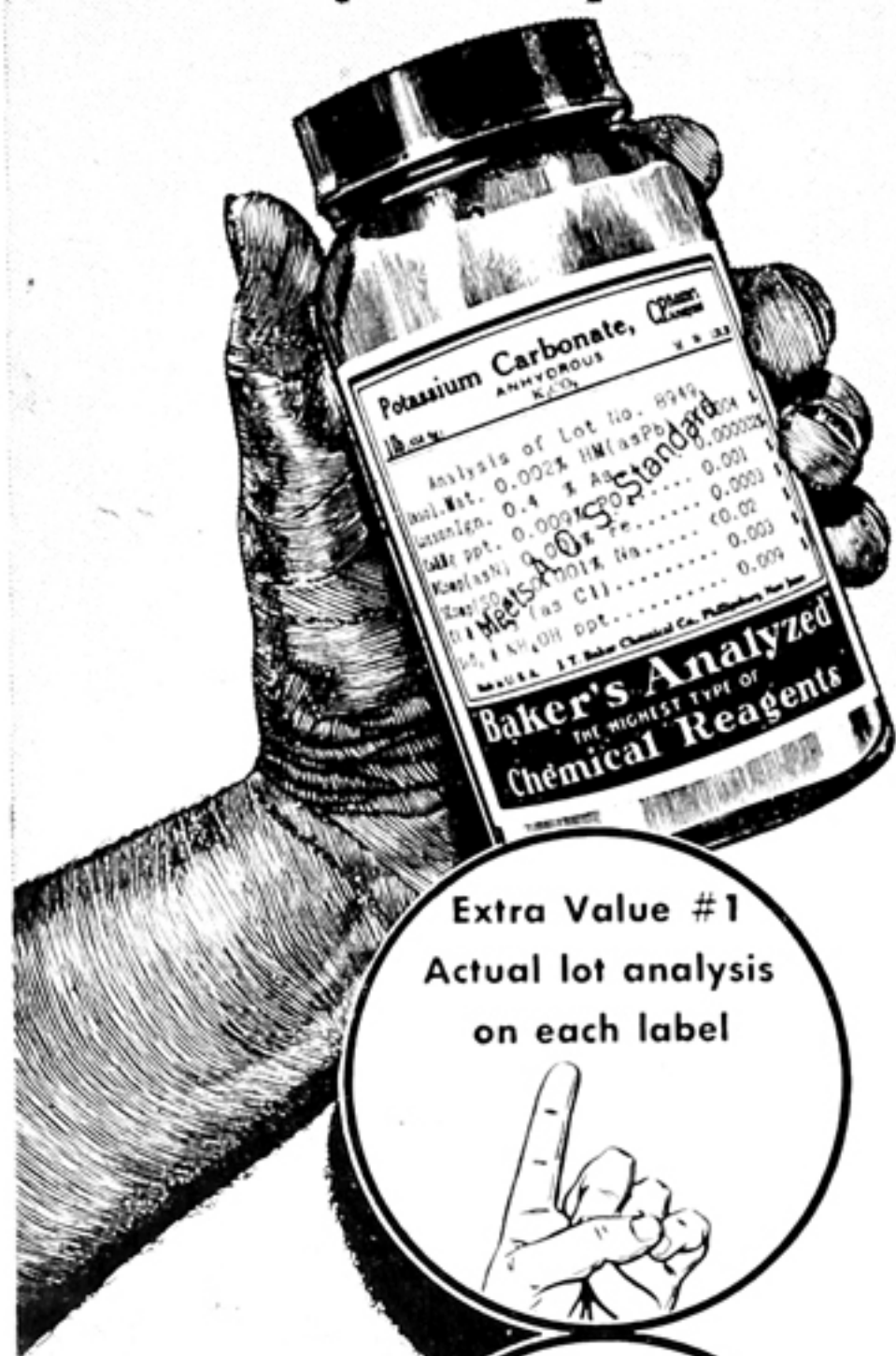
The
**PUGET
SOUND** **CHEMIST**

BULLETIN OF THE PUGET SOUND SECTION OF THE AMERICAN CHEMICAL SOCIETY

APRIL, 1950

when you buy "Baker's Analyzed" C. P. CHEMICALS

you get all these EXTRA VALUES



Extra Value #1
Actual lot analysis
on each label



Extra Value #2
Multiple Case Plan
saves up to 10%



Extra Value #3
Quick service from
nearby points

Look at the label on the reagent chemicals you buy. Each Baker Analyzed label gives you the degree of purity achieved by actual lot analysis—not just maximum limits of impurities.

Baker's Multiple Case Plan saves you money. Save 5% extra if you order in 5 case lots for shipment to one point—approximately 10% if 25 cases are shipped to one point.

More of the nation's leading Laboratory Supply Houses carry complete stocks of Baker's Analyzed C. P. Chemicals than any other brand. This means quick shipments to almost any place at any time. Be sure to get all three extra values. Specify Baker's. Get all three extra values—extra quality, service and price. This is Baker's method of giving values.

J. T. Baker Chemical Co., *Executive Offices and Plant*, Phillipsburg, New Jersey. Branch Offices: New York, Philadelphia, Boston, Chicago and Los Angeles.

**BE SURE TO
GET ALL
THREE**

SPECIFY "Baker's Analyzed"

the Laboratory Chemicals with
the actual lot analysis on the label

Baker's Chemicals
C. P. ANALYZED • FINE • INDUSTRIAL



Baker's Analyzed C.P. Chemicals are Sold in Your Area by
SCIENTIFIC SUPPLIES CO.

122 Jackson Street
SEATTLE

Eliot 1134

PUGET SOUND CHEMIST

The **PUGET SOUND CHEMIST**

**Published by the Puget Sound Section
American Chemical Society**

Monthly from September through June. Non-member subscription rates, \$1.50 year.
For non-receipt of copies or change of address, notify Puget Sound Section Secretary.
The Puget Sound Section of A. C. S. is not responsible for statements or opinions
expressed in this publication.

Permission to reprint is granted to all A. C. S. publications.



Editor and Business Manager

CHARLES V. SMITH

Northwest Laboratories

Second and James, Seattle — MAin 0680

Associate Editors

G. L. PUTNAM

**University of Washington
Seattle — MElose 0630**

F. BRUCE SANFORD

**U. S. Fish and Wildlife Service
Seattle — EAsT 0586**

Assistant Editors

TED NIEDO

WE. 6519

BEN BALDWIN

FI. 1430

Photographer

G. OTTO ORTH, JR.

**2919 First Avenue South
Seattle — MAin 4090**

NEWS CONTRIBUTORS--

DR. CARL M. ANDERSON, McMinnville

DEAN BALKEMA, Shelton

DR. WALTER CARMODY, Seattle Univ.

DR. LEO FRIEDMAN, Corvallis

DR. C. H. JOHNSON, Salem

ROBERT B. DEAN, Eugene

CHAS. R. F. SMITH, Richland, IVOR JONES, U. S. Fish and Wildlife

ROBERT C. OLSEN, Pac. Luth. College

C. E. HIGER, Everett

DR. A. W. STOUT, Portland

J. L. CULBERTSON, Pullman

BEDE ERNSDORFF, Olympia

JOHN A. ARDUSSI, Seattle (I.F.T.)

These advertisers make the PUGET SOUND CHEMIST possible

. . . Patronize Them . . .

	<i>Page</i>		<i>Page</i>
J. T. BAKER CHEMICAL CO.	2	A. J. NORTON	15
DOW CHEMICAL CO.	11	NORTHWESTERN MUT'L FIRE ASSN.	22
KIMBLE GLASS	21	ORONITE CHEMICAL	9
LAUCKS LABORATORIES, INC.	23	SCIENTIFIC SUPPLIES CO.	19
MALLINCKRODT CHEMICAL WORKS ..	24	VAN WATERS & ROGERS	17
MERCK & CO.	13		

Volume 11

No. 4

APRIL, 1950

PUGET SOUND SECTION

AMERICAN CHEMICAL SOCIETY

EXECUTIVE COMMITTEE

For the Year 1950

Chairman—COLLIS C. BRYAN

Monsanto Chemical Co., 911 Western Ave.,
MAin 4203.
3870 46th Ave. N. E., VERmont 1181.

Chairman Elect—EDWARD C. LINGAFELTER

University of Washington, MELrose 0630.
5323 27th Ave. N.E., VERmont 7739.

Secretary—JIM C. DRURY

Lyle Branchflower Co., 15th Ave. N.W. and
Shilshole, DEXter 4500.
1015 East 100th Street, KENwood 6417.

Treasurer—AARON E. MARKHAM

University of Washington, MELrose 0630.
2321 East 104th.

Immediate Past Chairman—

R. D. SPRENGER

College of Puget Sound, Tacoma

Councilors—

HERBERT R. ERICKSON

The Tower Co., 5421 First Ave. South
1631 North 51st, MELrose 5233.

ARTHUR J. NORTON

2919 First Avenue South, MAin 4090.

Alternate Councilors—

REX J. ROBINSON

University of Washington, MELrose 0630.

PAUL C. CROSS

University of Washington, MELrose 0630.

COMMITTEES

Program—

Chairman, E. C. LINGAFELTER

University of Washington, MELrose 0630.
5323 27th Ave. N.E., VERmont 7739.

D. S. WEDDELL

HOLLIS N. PHILLIPS

Public Relations—

Chairman, G. OTTO ORTH

2919 First Avenue South, MAin 4090.
9721 8th Ave. N.E., VERmont 6961.

DONALD V. REDFERN

CURTIS F. GERALD

Finance—

Chairman, JOSEPH L. McCARTHY

Dept. of Chemistry, U. of Wash., ME. 0630.
Mercer Island, AD. 1409.

HAROLD L. RUDOW

Social—

Chairman, DIRK VERHAGEN

Lyle Branchflower Co., 15th Avt. N.W. and
Shilshole, DEXter 4500.
1816 East 82nd, KE. 8928.

NORMAN W. GREGORY

Employment—

Chairman, R. W. MOULTON

Department of Chemistry, University of
Washington, MELrose 0630.
5217 39th Ave. N.E., VERmont 5236.

J. M. KNISELEY

Professional Practice and Legislation

Chairman, DAVID M. RITTER

4700 8th Avenue N.E., Seattle 5, W
MELrose 8858.

E. GRAY KING

Regional Activities—

Chairman, DR. VICTORIAN SIVERTZ

Department of Chemistry, University of
Washington, MELrose 0630.
4833 Purdue, Kenwood 7252.

W. RONALD BENSON

Special Meetings

Chairman, P. R. FEHLANDT

College of Puget Sound, Tacoma 6, W

ROBERT G. PAQUETTE

CHARLES R. HARLOCK

ARTHUR W. EHRET

Membership—

Chairman, CLIFFORD E. HIGER

Everett Junior College, Everett, Wash

ROBERT P. LENT

E. V. WHITE

THOMAS E. MURPHY

ROBERT E. DAVIS

DEAN W. BALKEMA

Engineering Council—

Chairman, GERALD O. FREEMAN (1 yr)
Laucks Laboratories, MAin 0727

L. P. CALLAHAN (2 yrs.)

Libby McNeil Libby, P.O. Box 1902,
CA. 5010.

April Meeting

Tacoma

JOINT MEETING WITH A.I.Ch.E.

GUESTS AND WIVES INVITED

THURSDAY, APRIL 20, 1950

. . .

Plant Trips at 4:00 P. M.

Copra Oil Plant - Permanente Metals

. . .

Dinner at the Towers

Social Hour at 5:15 - Dinner at 6:15

Speaker: Dr. J. G. Hooley, University of British Columbia

Subject: Glass Developments

Dinner Reservations Will Be Mailed to You

May Meeting

Puget Sound Section

AMERICAN CHEMICAL SOCIETY

Time

Thursday, May 11, 1950, 7:30 p.m.

Place

Seattle, 131 Bagley Hall, University of Washington

Speaker

DR. G. W. BEADLE, California Institute of Technology

Subject

CHEMICAL GENETICS

No Host Dinner at 6:00 p.m., Student Union Building.

For Reservation Phone Jim Drury, DE. 4500, not later than May 8th

APRIL SPEAKER



Biographical

J. G. Hooley was born in Vancouver in 1914 and obtained his M.A. from the University of British Columbia in 1936 and his Ph.D. from M.I.T. in 1939. After three years as a research chemist with Corning Glass Works he joined the staff at the University of British Columbia and was appointed professor and chairman of the department in the summer of 1949.

Dr. Hooley's researches have been in the physical inorganic field. His work on the atomic weight of rubidium with the late Dr. E. H. Archibald was accepted by the International Committee on Atomic Weights in 1937. His determinations at M.I.T. of heat capacities down to 10°K resulted in publications on the significance of the Curie temperature. His glass composition work at Corning had many facets. One of these assisted in putting 790 Vycor ware (96% SiO₂) on the market. An-

other which dealt with U.V. transmitting glasses, resulted in a patent on a black U.V. glass used in night fighter planes during the war. A third was concerned with fluorescent glass compositions and gave two more patents. He has continued his work on glass surfaces and their chemical stability at U.B.C. Of late an interest in tracer techniques has taken him to the Canadian Atomic Energy Plant at Chalf River for two summers.

He is a Fellow of the Chemical Institute of Canada, a member of the A.C.S. and past president of the Vancouver Chemical Association and the B. C. Academy of Sciences.

MAY SPEAKER

Biography

GEORGE WELLS BEADLE

Born: Wahoo, Nebraska, October 22, 1903.

Education:

B.S. University of Nebraska, 1926

M.S. University of Nebraska, 1927

Ph.D. Cornell University, 1931.

Research interests:

1926-1931

Genetics and cytology of Indian corn,

1931-1940

Genetics of *Drosophila melanogaster*

Chemistry and biology of eye pigment development in *Drosophila*

1940-present

Chemical genetics of the red bread mold *Neurospora*.

Positions:

National Research Fellow

California Institute of Technology
1931-1933

Research Fellow and Instructor

California Institute of Technology
1933-1936

Assistant Professor of Genetics

Harvard University, 1936-1937

Professor of Biology

Stanford University, 1937-1946

Professor of Biology and Chairman of the Division of Biology, California Institute of Technology, 1946.

Societies, etc.

Sigma XI (National Lecturer, 1945)
Genetics Society of America (President 1946)

National Academy of Sciences
American Philosophical Society
American Society of Zoologists
Botanical Society of America

Publications:

On Introduction to Genetics (A. H. Sturtevant and G. W. Beadle, Saunders, 1939).

Technical papers.

Lectureships:

Norman Wait Harris Lectures, Northwestern, 1949

Vanuxem Lectures, Princeton, 1948.

Honorary Degrees:

D. Sc. Yale University, 1947

D. Sc. University of Nebraska, 1949.

Committees, etc.

Member Advisory Committee of Biology and Medicine, Atomic Energy Commission, 1948.



Friends are as companions on a journey, who ought to aid each other to persevere in the road to a happier life.

NOTICE!

PROPOSED CHANGES IN BY-LAWS

1. That from Section 1 of Article VIII the word "Library" be deleted from the list of standing committees.
2. That Article V, Section 3 be changed to read as follows: "The Executive Committee shall consist of the officers of the section, the immediate Past Chairman, the councilors, and the Editor of the Puget Sound Chemist."

Note: The change that is proposed is the addition of the Editor of the Puget Sound Chemist to the Executive Committee.

Regional Meeting

A.C.S.

at

RICHLAND

June 8 - 9

1950

SEATTLE NEWS

Sick's Seattle Brewing and Malting Company was featured in a photograph in the February issue of "Food Industries."



Mr. Martin Heerdt, Jr., a member of the Puget Sound Section of the Institute of Food Technologists, employed at the Fish & Wildlife Services, 2725 Montlake Blvd., expects to resume his work shortly after a two-year confinement. During this period his fellow workers have been making weekly visits to his bedside with technical literature. The Puget Sound Section I.F.T. looks forward to his speedy return to active membership status and good health.



The feature article on Washington Laboratories appearing in the February issue of the Puget Sound Chemist was reprinted in the "Fishermen's News", a monthly paper covering the fisheries in the Pacific Northwest. The Puget Sound Chemist was given appropriate credit for the article.

ENGINEERING OPEN HOUSE

Thousands of visitors attended the University of Washington Engineering Open House on March 31 and April 1. Of particular interest to chemists were the displays on Unit Operations, Industrial Processes, and Pulp and Paper. Included were three experimental liquid-liquid extraction units, laboratory apparatus for nitrogen fixation, separation of copper sulfate from cobaltous sulfate with ion-exchange resins, and a small scale working model of a pulp mill.

U. OF. WASH. FIELD TRIP

Through the courtesy of the Northwest chemical industry, thirty students of the senior chemical engineering class visited a number of plants on March 21-23. Dr. Frank B. West made the arrangements.

Nearly two years under construction, the plant of the Puget Sound ByProducts Co. is about ready to go into operation, and pickup routes will start operating the week of January 29, according to Clark Schonberg, manager. Mr. Schonberg states that the pickup routes will not only cover retail butcher shops in Snohomish and Skagit counties, but will provide service in disposing of dead animals. The plant is constructed in such fashion as to conform with all state and federal regulations.

—From Feedstuffs, Feb. 11.

OLYMPIA NEWS

The Chemistry Department at St. Martins' was featured on the College's weekly radio program aired over Olympia's KGY on March 1, at 7:00 p.m. The program was in the nature of a seminar of department faculty and students. The principle subject was the structure of molecules and the taste-sense, especially the interesting phenomena of "taste-blindness" reactions to the phenylthiourea type of molecules. The staff reported that the point could have been presented much more readily over television, and even better if there

were such a system as "telestate" broadcasting.

—Bede Ernsdorff.

VANCOUVER, B. C., NEWS

The March meeting of the B. C. Food Technologists will be held on March 29th at 8:00 p.m. in the Province Auditorium, Vancouver, B. C. Mr. Clyde W. Eddy, last year's President and Chairman, will be the speaker. His Subject will be: *"Physical and Chemical Relationships of Water in Food."*

OREGON NEWS

The Oregon Section meets on April 8 at Vanport College, Portland. The speaker will be Dr. George Watt of the University of Texas. His subject will be: *"Metallic Ions in Liquid Ammonia"*.

J. S. McGrath, Oregon Section Counselor, plans to attend the A.C.S. annual meeting at Philadelphia.

—A. W. Stout.

"Dr. Robert B. Dean of the University of Oregon attended the Houston meeting of the American Chemical Society and delivered two papers. One paper, which dealt with Simplified Statistics for Small Numbers of Observations, was co-authored with Dr. W. J. Dixon of the University's Mathematic's department. On the way to Houston Dr. Dean conferred with Dr. F. O. Koenig at the California Institution of Technology on problems related to the Absorption of Vapors by Monolayers, which formed the subject of his second paper."

—Robert B. Dean.

UTAH MEETING

There will be a meeting of the Pacific Division of the AAAS in Salt Lake City, Utah, June 19-24, 1950. The Northwestern Utah Section of the ACS is trying to arrange a program of Chemistry papers for June 20, 21 and 22.

Titles and authors of papers should be sent to Dr. James M. Sugihara, De-

PUGET SOUND CHEMIST

THE NAME TO WATCH IN CHEMICALS



producers of basic chemicals for manufacturers and processors

A major source of supply for—

DETERGENT D-40	CRESYLIC ACIDS
DETERGENT SLURRY	NAPHTHENIC ACIDS
ALKANE	XYLOL
WETTING AGENTS	BENZOL
POLYBUTENES	GAS ODORANTS
PURIFIED SULFONATE	PHTHALIC ANHYDRIDE
SODIUM SULFONATES	DIBUTYL PHTHALATE
ALIPHATIC ACID	LUBE OIL ADDITIVES
HYDROFORMER CATALYST	ORTHO, META, PARA XYLENE
QUATERNARY COMPOUND ATM-50	

Inquiries on description, properties and uses of products are invited... write

ORONITE CHEMICAL COMPANY

38 SANSOME STREET, SAN FRANCISCO 4, CALIF. • 30 ROCKEFELLER PLAZA, NEW YORK 20, N. Y.
STANDARD OIL BLDG., LOS ANGELES 15, CALIF. • 600 S. MICHIGAN AVENUE, CHICAGO 5, ILL.
824 WHITNEY BUILDING, NEW ORLEANS 12, LA.

partment of Chemistry, University of Utah, Salt Lake City 1, Utah, before April 24. The time allowed for each paper will be fifteen minutes unless otherwise requested. Two copies of a 100 to 200 word abstract should be sent to Dr. Sugihara by June 1.

FISHERIES TECHNOLOGISTS MEET

The annual two-day meeting of the Pacific Fisheries Technologists, a recently formed organization of persons from Washington, Oregon, and British Columbia, interested in fishery technology, was held February 24 and 25 in Seattle. The meetings took place in the Health Sciences Building and Fisheries Halls No. 1 and 2 on the University of Washington Campus. A number of problems of interest to the fishing industry were discussed during the various sessions.

Reports of the activities and research

being carried out at the Oregon Seafoods Laboratory at Astoria, Oregon, the Pacific Fisheries Experimental Station in Vancouver, B. C., and the Seattle Technological Laboratory of the Fish and Wildlife Service were given by Mr. Russell O. Sinnhuber, Dr. Neal M. Carter and Mr. Maurice E. Stansby, respectively.

Of approximately 70 persons attending the meetings—more than 50 were chemists.

—G. Ivor Jones.

NECROLOGY

Some fools will do what they hadn't oughter:

This one fought a sodium fire with water!

Although some of last year's cars looked like they were smelling for something, durned if some of the new models don't give you the impression they found it.

CHAIRMAN'S MESSAGE

The meeting on April 20th, which is to be a joint meeting with the A.I.Ch.E., again promises to be outstanding in interest, information and enjoyment.

The pattern of previous years will be followed with plant trips in the afternoon at 3:30 or 4:00. The firms that have consented for visit are: The Copra Vegetable Oil Plant, Permanente Aluminum plant and possibly others.

After the plant trips we will gather at the Towers at 5:15 for refreshments and dinner at 6:15.

We are indeed fortunate that our program chairman, Dr. Lingafelter, succeeded in obtaining Dr. J. G. Hooley, Professor of Physical Chemistry at Vancouver, B. C., to be the speaker of the evening. As Dr. Hooley was a research chemist with the Corning Glass Works for several years, his discussion of glass will unquestionably be authoritative, instructive and interesting.

I urge you to attend this meeting and to return your reservation cards promptly after receiving them.

Dr. Fehlandt, his special meetings committee and Marshall T. Ramstad, representing the A.I.Ch.E., are to be congratulated upon their arrangements.

For the May 11th meeting, which comes too early in the month for the notice to come to you in the Puget Sound Chemist, Dr. G. W. Beadle, from the California Institute of Technology, will speak on "Chemical Genetics."

A no-host dinner with Dr. Beadle is planned for 6:00 p.m. prior to this meeting at the New Student Union Building. This will be an opportunity for us to visit that new addition to the campus which I understand is worth seeing. Don't forget to phone your reservation to our secretary, Jim Drury, DE. 4500, as early as possible, but not later than May 8.

Kindly note the business meeting at 7:30. At that time we are to vote on two proposed changes in our By-Laws:

1. That the Library Committee be de-

leted from the Standing Committees.

2. That the Editor of the PUGET SOUND CHEMIST be made a member of the Executive Committee.

Any change in our By-Laws is very important and should be studied, thoroughly discussed and the implications understood by all before a vote is taken. Therefore, it is hoped that all members will be present and enter actively in these considerations.

Your Executive Committee, at the suggestion of Mr. A. J. Norton, is making an effort to get our Herbert R. Erickson nominated and elected to the Council Policy Committee. As Herb is well liked, has keen insight and outstanding judgment, it is obvious to us that he would be a real asset to the Council Policy Committee as well as an excellent representative from the West. Whether a majority of the councilors can be convinced of that remains to be seen.

Mr. Norton has sent a letter to the chairman of the Committee on Nominations and Elections presenting the name of Herbert R. Erickson for this nomination along with a biographical outline, and your chairman is writing to the chairmen of twelve sections west of the Rockies soliciting their assistance.

—Collis C. Bryan,
Chairman.



MARCH SPEAKERS SUMMARY

Complex Metal Hydrides

Dr. A. E. Finholt

Study of the complex metal hydrides has broadened knowledge of bonding in inorganic compounds, extended the field of inorganic and organic synthesis and has led to application of many organic chemical techniques to inorganic processes.

These substances are coordination compounds of hydrogen with other elements. The parent hydrides from which they are derived belong to the class of electron deficient molecules. Formation of donor-acceptor bonds in the complex hydrides results in more complete utilization of bond orbitals and

satisfaction of the electron deficiency. In this respect they can be considered as products of reaction between generalized acids and bases in the Lewis sense.

Progress toward a complex hydride chemistry began with Stock and his co-workers in Germany beginning at the turn of the century. This group at the Kaiser-Wilhelm Institute hydrolyzed magnesium boride to obtain traces of the desired compounds. Beginning with this laborious procedure all of the known hydrides were identified. In the early thirties Schlesinger and Burg introduced the electric arc reduction of boron halides by hydrogen. By this means diborane was made at the rate of one liter per day of gas at standard conditions. Soon thereafter the work on the complex borohydrides began, and during the war years this resulted in methods whereby diborane could be produced in the laboratory at the rate of ten liters per day of gas at standard conditions. The process could be scaled up to industrial size.

The complex hydrides are found as compounds with several metallic elements and the group $(MH_4)^-$. The element M can be boron, aluminum or gallium.

The boro-hydrides of lithium, beryllium, aluminum, titanium, uranium and the transuranic elements have been prepared. These can be obtained by reaction between the metal alkyl and diborane in the case of lithium, beryllium and aluminum or by a metathetic reaction between a borohydride and the salt of the metal. Reaction between lithium borohydride and aluminum chloride is an example of the latter process. Lithium borohydride can also be obtained by reaction between lithium hydride and diborane in ether.

The most valuable of the aluminum hydrides is the lithium salt, which can be prepared rather easily from lithium hydride and aluminum chloride in ether. This substance is valuable as a reducing agent and for preparing many metal hy-



and

**BEAR
BRAND
CHEMICALS**

*Backed by
25 Years Experience Working
with West Coast Industries*



**Industrial Chemicals
Compressed Gases
Chlorinated Solvents
Flotation Reagents
Agricultural Chemicals**



*West Coast Products
for West Coast Industries*

**GREAT WESTERN DIVISION
THE DOW CHEMICAL COMPANY
SAN FRANCISCO, CALIFORNIA
SEATTLE LOS ANGELES**

drides not easily obtained by any other method. Thus the hydrides of silicon, tin, several transition metals such as zinc and mixed hydride-organic-metallic compounds such as $\text{Ge}(\text{CH}_3)_2\text{H}_2$ can be prepared rather easily.

It would be well to mention that all these substances hydrolyse. A definite gradation in this property is observed in the following series of compounds:

B_2H_6 $\text{Al}(\text{BH}_4)_3$ $\text{Be}(\text{BH}_4)_2$ $\text{Li}(\text{AlH}_4)$ $\text{Li}(\text{BH}_4)$ $\text{Na}(\text{BH}_4)$. Of these the first four appear qualitatively identical in their vigorous reaction with water. Much less reactive are the alkali metal borohydrides, and in the absence of heavy metal ions sodium borohydride can be recrystallized from warm water as a dihydrate.

The reducing properties of the complex hydrides are proving invaluable to the organic chemists. Carboxylic acids, esters, aldehydes and ketones, epoxides, are reduced to alcohols at room temperature. Nitriles and nitro compounds give amines. Several sulfur compounds such as di-sulfides undergo reduction. These reactions give almost quantitative yields. The reductions leave ethylenic unsaturation untouched in most cases.

Lithium and sodium borohydrides function as milder reducing agents than the aluminohydrides. Thus a keto-ester can be reduced to a lactone, and *m*-nitroacetophenone gives *m*-nitrophenyl-methyl carbinol. Sodium borohydride offers the distinct advantage of being useful in aqueous solution.

—D. M. Ritter.

◆ ◆
Dear Members:

Charlie Smith, our editor, has just knocked my ears off because I haven't turned in much news lately. If you have something, please send it along so I can get out of the doghouse.

—Bruce Sanford.

"... send it in by the 20th of the month so I don't have to make so many trips to the printers—or I'll really get tough."

—Editor.

FOOD TECHNOLOGISTS SCHEDULE—SPRING ACTIVITIES

The Puget Sound Section of the Institute of Food Technologists held their January 23rd dinner meeting at the Chalet.

Dr. T. L. Swenson, Director of Food, Chemical & Research Laboratories, Inc., Seattle, addressed the group on the subject of "The Last Frontier of Food Quality Control: The Food Package." In his well received address, Dr. Swenson outlined the historical development of food packaging from the dawn of history up to the present date.

Special emphasis was placed on the functional approach to the use and design of food containers. One is vastly impressed upon considering the diversity and complexity of modern type food containers, in comparison with the primitive and simple earthen pots used by early man for grain and water storage.

The next scheduled meeting of the Institute is March the 1st, to be held at the Pommerelle Winery through the courtesy of Mr. Fred Wann, President. (9417 E. Marginal Way, 8 p.m.) The meeting will be preceded by an Annual Banquet Planning Committee progress discussion. Formal announcements will be sent by mail. Problems in Wine Technology will be discussed, followed by a tour through the winery.

There will also be a meeting of the Institute of Food Technologists March 29th, pending further confirmation. Mr. Harold J. Barrett of Harold J Barrett Co., Seattle will address the group on the subject "The Importance of Quality Control From a Marketing Viewpoint." Mr. Barrett was formerly with the Food & Drug Division-State Department of Agriculture, and for the past several years has successfully operated his own food brokerage concern.

An employment committee for food technologists affiliated with the National office of the IFT has been established locally. Services of the Employment Committee are available without charge

The Last Word in Purity

The unvarying purity of MERCK LABORATORY CHEMICALS is assured by one of the most advanced quality-control systems in existence. A few examples of the extensive Merck line of fine chemicals are shown below. Make these dependable "precision tools" work *for you*—specify *Merck*.

**The same
high standard
of purity for
every batch**

+
MERCK
+

Reagent

MAGNESIUM CARBONATE MERCK

Maximum Impurities	
Insoluble in HCl Sulfide (H ₂ S) Sulfide (NH ₄) Phosphate (NH ₄) Sulfate & insoluble Silica Alkali carbonates	Iron (Fe) Cadmium (Cd) Heavy Metals (as Pb) Iron, zinc, barium, calcium Water-soluble substances Total ash

MERCK & CO. Inc. Manufacturing Chemists
RAHWAY, N. J.

The same
high standard
of purity for
every batch

+
MERCK
+

Reagent


POTASSIUM IODIDE MERCK

CRYSTALS

CONFORMS TO A. C. S. SPECIFICATIONS

Maximum Impurities	
Insoluble Mercury Sulfide (H ₂ S) Sulfide (NH ₄) Sulfate (Ba) Nitrogen compounds Phosphate (NH ₄)	Iron (Fe) Cadmium (Cd) Heavy Metals (as Pb) Iron, zinc, barium, calcium Water-soluble substances Total ash

MERCK & CO. Inc. Manufacturing Chemists
RAHWAY, N. J.



+
MERCK
+

Reagent

POTASSIUM PHOSPHATE DIBASIC MERCK

Maximum Impurities	
Carbonate Sulfide (H ₂ S) Sulfide (NH ₄) Sulfate (Ba)	Iron (Fe) Cadmium (Cd) Heavy Metals (as Pb) Iron, zinc, barium, calcium Water-soluble substances Total ash

K₂HPO₄ Mol. wt. 171.1

CAUTION—Keep well closed

MERCK & CO. Inc. Manufacturing Chemists
RAHWAY, N. J.

+
MERCK
+

Reagent

SODIUM CARBONATE ANHYD. MERCK

CONFORMS TO A. C. S. SPECIFICATIONS
Suitable for Microanalysis

Maximum Impurities	
Insoluble Mercury Sulfide (H ₂ S) Sulfide (NH ₄) Sulfate (Ba) Nitrogen compounds Phosphate (NH ₄)	Iron (Fe) Cadmium (Cd) Heavy Metals (as Pb) Iron, zinc, barium, calcium Water-soluble substances Total ash

MERCK & CO. Inc. Manufacturing Chemists
RAHWAY, N. J.

The same
high standard
of purity for
every batch

**For best results
be sure to
specify Merck
Laboratory
Chemicals**

**For best results
be sure to
specify Merck
Laboratory
Chemicals**

MERCK LABORATORY CHEMICALS

MERCK & CO., INC. *Manufacturing Chemists* RAHWAY, N. J.

New York, N.Y. • Philadelphia, Pa. • St. Louis, Mo. • Chicago, Ill. • Elkton, Va. • Los Angeles, Calif.

In Canada: Merck & Co. Limited Montreal • Toronto • Valleyfield

to members of the Institute and to prospective employers seeking the services of food technologists. Address inquiries to Mr. Max Patashnik, P. O. Box 1902, Libby, McNeill & Libby, Seattle, Washington.

AUDITING REPORT

To the Chairman and Members of the Puget Sound Section of the American Chemical Society

We have examined the operating statement of the Puget Sound Section of the American Chemical Society for the period starting December 1, 1948, and ending March 1, 1950, together with the books, vouchers, and etc., relating to the same. Our examination has been made with generally accepted auditing procedures. In our opinion, the operating statement and books present fairly and accurately the financial condition of the Puget Sound Section.

Thomas H. Williams,
A. J. Norton,
Auditing Committee.

FOOD TECHNOLOGISTS— ANNUAL SPRING BANQUET

Final plans for the Annual Spring Banquet of the Puget Sound Section of the Institute of Food Technologists have been completed.

This affair is designed to stress the contributions that Pacific Northwest Food Industries make toward the maintenance at the Nutritional Health and Welfare of the Nation.

Local food products grown, manufactured, and processed in this area are being generously contributed by regional concerns active in the food field.

Needless to say, the banquet tables at the Seattle Chamber of Commerce will be groaning with the weight of prize winning, food delicacies and beverages emanating from the Pacific Northwest.

The event will take place Thursday evening, April 27, commencing at 6:00 p.m. according to the arrangements committee chairman Dr. T. L. Swenson.

PROGRAM

Social Mixer Hour.....	6:00 p.m.
Dinner	7:30 p.m.
Introduction of Invited Guests	8:45 p.m.
Message from Governor Langlie	9:00 p.m.
Entertainment	9:30 p.m.

Many valuable and entertaining door prizes will be distributed at the conclusion of the banquet. Tickets are available from the Ticket Committee and from the Section Secretary, Max Patashnik, c/o Libby, McNeill & Libby, P.O. Box 1902, Seattle, Washington; telephone CA. 5010.

The Arrangement Committee extends a cordial invitation to non-members of the IFT who presently are connected or affiliated with any branch of food production in the Northwest. Reservations should be made promptly.

The Entertainment Committee has promised a girdle brtaking, suspender snapping program with lots of eats, drinks, jokes and prizes.

It is planned that all those present will be accompanied by their wives or lady friends—to carry home the prizes—and maybe hubby too!

—John A. Ardussi.

PACIFIC COMPOUND & MANUFACTURING CO.

88 Jackson St., Seattle

Sales and service on chemical specialties to virtually every type of industry is the business of Pacific Compound. In addition, this company provides custom compounding and packaging facilities for all types of industries.

Since its inception some four years ago, Pacific Compounds' growth has been steady. The company has expanded into the new chemical specialties and consumer products for the home, farm and industry. Besides dishwashing, laundering and the usual household cleaning compounds, Pacific Compound produces materials for commercial laundries, metal cleaning, boiler compounds, dairy cleaning, automo-

PUGET SOUND CHEMIST

bile washing, janitorial cleaning compounds and industrial detergents.

Also Pacific Compound offers a range of cleaners so wide it covers every condition in the country. These are laboratory engineered to cope with all degrees of water hardness. They are custom compounded to specific conditions.

Through every stage of production, with laboratory facilities available for guidance, the processes are carefully controlled to produce high quality products. The company is continuing to apply its initiative and resourcefulness toward improving the quality and utility of its products, as well as developing new chemical compounds for the industries.

The facilities of Pacific Compound have been carefully planned and developed so that the company can keep pace with the future.

NEW MEMBERS

BARLOW, David O., Bagley Hall, University of Washington, Seattle 5, Wash.

GUNDERSON, Robert D., 1525 19th Ave., Seattle 22, Wash.

MAYHEW, Delbert J., 304 West F St., Grandview, Wash.

ROUSH, Allan H., 4404 Union Bay Place, Seattle 5, Wash.

SOMERS, Howard, Grape View, Wn.

WALDICHUK, Michael, 2605 Tennis Road, Acadia Camp, U.B.C., Vancouver, B. C., Canada.

YOUNG, William A., 5012 22nd Ave. N.E., Seattle 5, Wash.

TRANSFERS

CARLSON, Lewis J., 326 S. 5th, Shelton, Wash.

From Iowa (Iowa City)

MARSHALL, Clair A., Seattle Univ., 900 Broadway, Seattle 22, Wash.

From N. Y. (New York City)

MEIKLE, Richard W., Dept. of Chem., University of Washington, Seattle 5, Wash.

From Illinois (Chicago)

MILLER, Robert H., College of Pharmacy, Univ. of Wash., Seattle, Wn.

ARTHUR J. NORTON

Consulting Chemist

RESIN, PLASTIC and
CHEMICAL RESEARCH
and DEVELOPMENT

Associate

G. OTTO ORTH, JR.

MAin 4090

2919 First South

Seattle

ALCOHOL PLANT MAKES WAX FROM FIR BARK

A new American industry was born Sunday at the Oregon Wood Chemical Co. plant, Springfield, with successful large-scale production of true wax from Douglas fir bark. Springfield is five miles East of Eugene.

Birth of the industry followed five and one-half months of pioneering in a field where, in many respects, there was no commercial precedent. The process, benzene extraction from old-growth fir bark, was no commercial precedent. The process, benzene extraction from old-growth fir bark, was discovered two years ago by Dr. E. F. Kurth, chemist at Oregon Forest Products Laboratory, Corvallis, and is adapted from a pilot plant there which has produced wax in small amounts for several months.

Termed "Amazing"

Success of the industrial plant was achieved after months of conversion of part of the former wartime alcohol plant, idle since July, 1947. Production of wax on the first "run" was termed "amazing" by technical observers in view of the fact no semi-works plant was operated between the lab stage and the vast Springfield process.

Manufacture of the new product

marks the first time a true wax has ever been produced anywhere in such large quantities from a raw material. The product, with further refining, has been deemed usable for nearly every purpose known for wax, and wax specialists say the wax industry.

Wins Praise

Ed Huckins, chief chemical engineer for a Los Angeles industrial engineering firm, who as consultant at Springfield was responsible in large part for the successful adaptation of the Kurth process said:

"In my 27 years' experience with waxes of all types, I have not processed a more promising wax. There is no greater potential source of wax known anywhere in the world."

Douglas fir bark has been largely wasted in the past, and is obtainable in vast amounts throughout the Northwest.

Has Non-Skid Qualities

Huckins said the new wax contains natural non-skid qualities, a Phenomenon not found in any wax now manufactured. Charles B. Hudson, Jr., president of the firm, would not reveal the amount of wax produced Sunday, but termed it "highly satisfactory."

"We progressed by correcting mistakes, and we still have a few minor adjustments to make, after which we will begin around-the-clock production, with several runs per day."

The wax, he said, is one of several products which will be made, as the company will produce wood-sugar molasses and other chemical products in operations which will start at a later date.

Tannin Recovery Planned

Paul Radtke, plant superintendent and former cottage Grove lumber operator, said one such adjustment will be installation of a tannin recovery unit, integrated with the wax process.

A high quality tannin, which has largely replaced American chestnut extract, was also discovered by Dr. Kurth, in his wax-making operation.

—Robert B. Dean.

BATTERY COMPOUNDS AND SOLUTIONS

(Stoarge battery additives are of interest in this area because of intensive promotion of "Duble-Power", "Super-Power", and "AD-X2", all of which consist largely of sodium sulfate and magnesium sulfate. Abstracted below are the conclusions of Dr. G. M. Vinal and the National Bureau of Standards, as set forth in letter of March 7 to G. L. Putnam. Experimental studies at the University of Washington, to be reported elsewhere, confirm the views of Dr. Vinal.—G.L.P.)

The National Bureau of Standards receives many inquiries about materials which are said to charge storage batteries or otherwise improve their performance. More than one hundred of such materials have been brought to the Bureau's attention during the past few years. The later tests confirm the Bureau's previous conclusions that these materials do not charge storage batteries nor do they materially improve the performance of the batteries.

Careful experiments have shown that batteries containing these solutions behave essentially the same as similar batteries not containing the materials in question; that is, no essential improvements in the capacity of the batteries, the time required for charging them, the operating temperatures, or the amount of water which must be added to maintain them, have been observed.

Since the storage battery stores chemical energy rather than electricity as such, the question may be asked how far the chemical reactions may proceed in the battery. Experience shows that, on the average, only 25 to 40 per cent of the active materials in the cell are actually used during discharge. A battery which has been discharged, therefore, to a voltage which is below the useful limit can recuperate to a limited extent if allowed to stand on open circuit for a short time so that the electrolyte has an opportunity to penetrate farther into the pores of the plates and thereby come into contact with active

materials which have not been previously converted to lead sulphate. Successive discharges of a battery may be made, therefore, before the battery becomes completely exhausted. Even then much of the original active material still remains. Changing the solution in the battery may permit some further discharge to be made as a result of the fresh solution making contact with active materials already present. This can not, however, be regarded as evidence that the battery has been charged, because the active materials of the plates have not been restored in any sense of the word.

The lead sulphate which is formed on the plates during the discharge is finely crystallized. If, however, the battery is allowed to stand in an exhausted condition for a considerable period of time, the crystals of lead sulphate tend to grow larger and there is also some increase in the amount as a result of local action. In time the plates may become encrusted with a coarsely crystallized lead sulphate which is difficult to break down. The condition of the battery at such a time is due primarily to failure to charge the battery properly. Slow charging is the best remedy for sulfation.

Analyses of some of the solutions have shown them to contain about 40 per cent sulphuric acid and some coloring matter. Other solutions contain about the same amount of sulphuric acid and in addition significant amounts of some or all of the following: sodium, magnesium, potassium, aluminum, and other less common materials. The sodium, for example, may have been added as soda, lye, or Glauber's salts, but it seems probable that the metallic ions mentioned above were introduced into the solution in the form of the common sulphate salts, such as Glauber's salts, Epsom salt and alum.

The use of sodium sulfate in batteries is an old story. It was suggested more than forty years ago, but various authorities have stated since that time that such a material is without beneficial ef-

CHEMICALS

Industrial • Agricultural
Raw Materials

*Largest and Most Complete Stocks
in Northwest*

VAN WATERS & ROGERS

Incorporated

SEATTLE - PORTLAND - SPOKANE
BOISE

fect in a battery. The Bureau's recent experiments on the determination of the rate of sulfation of battery plates indicates that even 5 percent of magnesium sulfate or sodium sulfate does not materially reduce the rate of sulfation. The indiscriminate addition of these solutions and compounds to a battery is not advisable.

◆ ◆ TABLE OF SINES AND COSINES TO 15 DECIMAL PLACES AT HUNDREDTHS OF A DE- GREE PUBLISHED

A 95-page book containing tables of sines and cosines to 15 decimal places at hundredths of a degree was published recently at the National Bureau of Standards, and is available from the United State Government Printing Office, Washington 25, D. C., at 40 cents per copy.

The page size is 10 1/4 by 7 3/4 inches.

FINANCIAL STATEMENT OF THE PUGET SOUND SECTION, AMERICAN CHEMICAL SOCIETY for the year 1949 OPERATIONS

Allotments from American Chemical Society		\$ 878.00
Mailing List	\$ 304.76	
Membership Committee Expense	6.75	
Speaker Expense	462.27	
Refreshment Expense	100.32	
Program Negotiations Expense	42.52	
Engineering Council	42.50	
Secretarial Expense	12.62	
Publicity Expense	10.36	
Awards Expense	15.00	
Dinner Deficit	85.35	
Chairman's Expense	29.46	
Treasurer's Expense	4.00	
Miscellaneous Expense and Stationery	28.14	
	<u>\$1,142.05</u>	
Deficit		264.05
		<u>\$1,142.05</u>

BALANCE SHEET

Cash	30.59	
Deferred Expense	21.22	
Notes Receivable	286.00	
Reserve Account		337.81
	<u>\$ 337.81</u>	<u>\$ 337.81</u>

A. E. MARKHAM, *Treasurer.*

DESCRIPTION OF AN ENGINEER . . .

(And Chemists too.—Ed.)

Although paid on a six-day basis, the engineer works seven days and as many nights a week. An engineer can be identified by his trusting look, the excitement of expression on his face, and the table of sines and cosines carried near his heart.

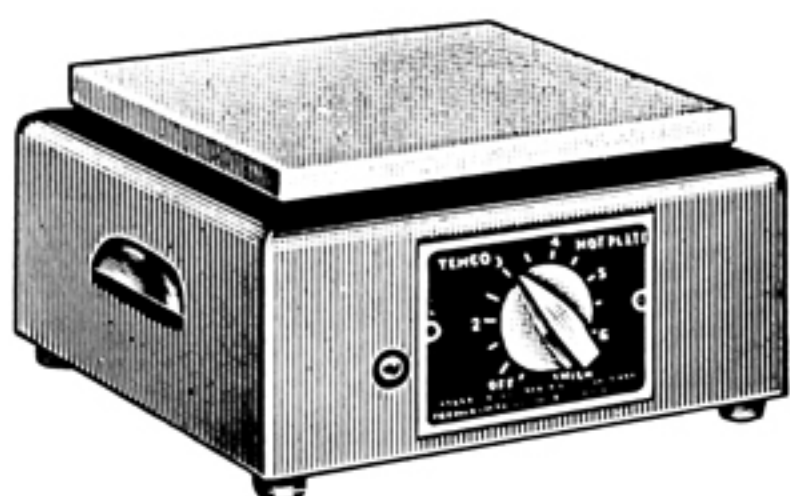
Through the ages, the engineer has continued to function until new technical schools of our country yield 10,000 young hopefuls into the American public, each armed with a slide rule, two handbooks, and a bad case of brain fatigue due to four years of unremitting toil. Some of those souls are

saved by becoming bond salesmen and insurance agents. Some of the remaining souls eventually gain success after working incessantly as engineers by becoming advertising managers, accountants, salesmen, and managing executives. But also they fail and become assistant chief engineers, chief engineers, and if complete failure, consulting engineers.

There is only one engineer on record who has become rich. He died recently in Colorado and left a fortune of \$50,000,000. He amassed his fortune by unceasing toil, superhuman perseverance, remarkable ingenuity, and the death of an uncle who left him \$49,999,995.

—From the American Engineer.

A COMPLETELY NEW HOT PLATE



**TEMCO
MODEL 1900**

FEATURING

- A 6" square cast aluminum surface plate that heats fast and evenly.
- An extremely sensitive but sturdy Thermostat providing completely variable control from 100° to 700° F. (38° to 370° C.).
- A unique design in thermostatic control holding temperature variations within 5° at 100° F. and within 2° from 200° F. to maximum.
- A control dial numbered to approximate temperature settings with a neon indicating light that glows while the plate is heating.
- Heating elements made of highest quality nickel chromium alloy and thermostat contacts of high grade silver.

Available for Immediate Delivery

S.S.Co. No. 33970 — \$19.75 each

●
Scientific Supplies Company

122 Jackson Street

ELiot 1134

Seattle 4, Washington

FINANCIAL STATEMENT OF THE PUGET SOUND CHEMIST, for the year 1949

OPERATIONS

Advertising Income		\$2,618.40
Discounts	\$ 3.14	
Printing Expense	2,222.66	
Editorial Expense	36.31	
Mailing Expense	30.48	
Treasurer's Expense	3.25	
	<u>\$2,295.84</u>	
Addition to Reserve	322.56	
	<u>\$2,618.40</u>	\$2,618.40

BALANCE SHEET

Cash	489.46	
Accounts Receivable	40.00	
Notes Payable		286.00
Reserve		243.46
	<u>\$ 529.46</u>	<u>\$ 529.46</u>

A. E. MARKHAM, *Treasurer.*

THE CHEMIST'S MENTAL ATTITUDE

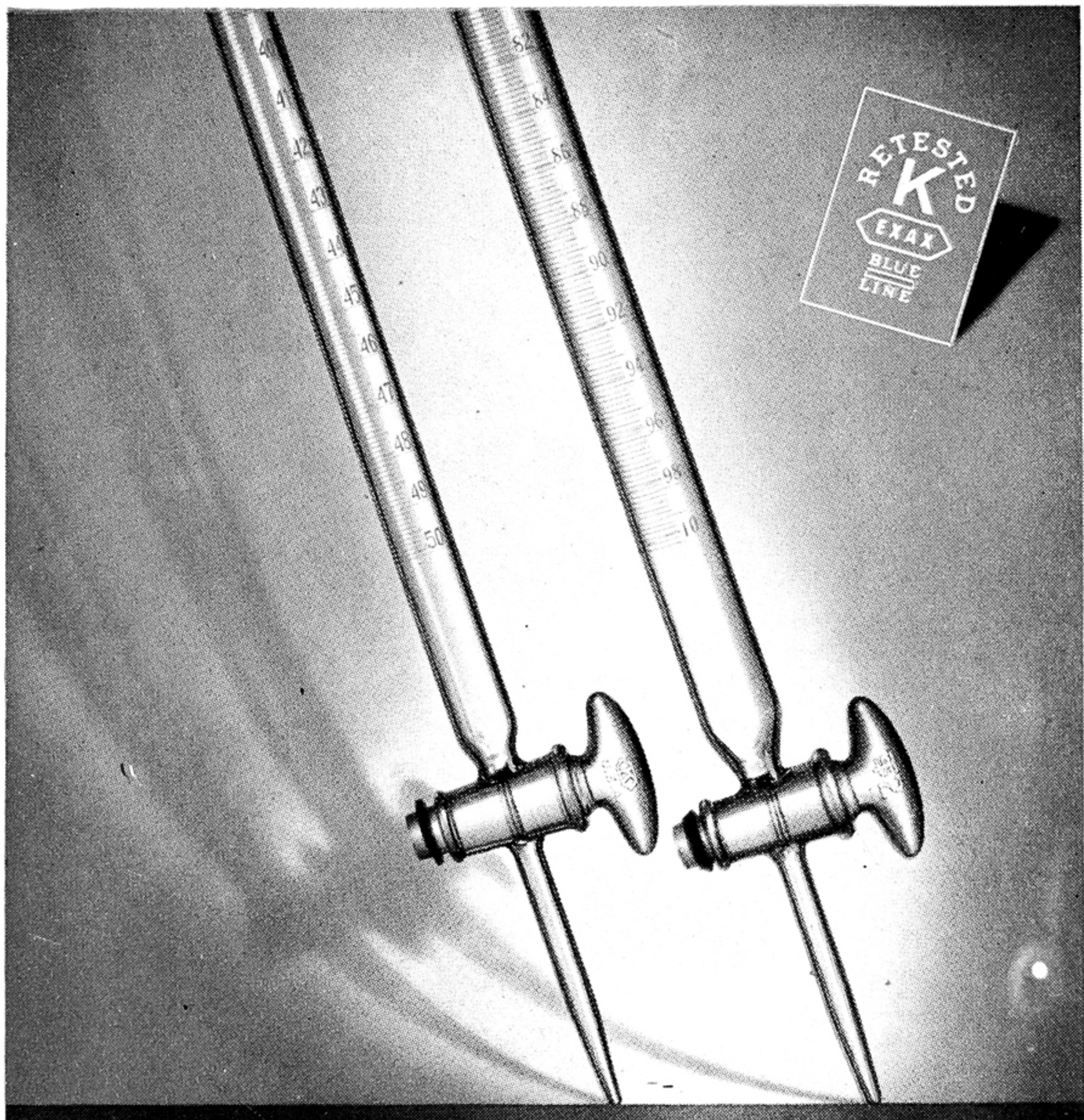
Chemists are, on the average, the most timid and self abasing people. This fact becomes more evident every day. They usually approach the plant manager or technical director with fear and trembling. They allow others to believe that their discoveries and inventions happen by chance. The press and radio have overworked this notion by dramatic nonsense to the effect that Edison scratched his head in bewilderment and despair at ever finding a filament for his electric light and when he noticed a hair caught under his fingernail he said, "Ah, there is my filament," and straightway used the hair successfully for this purpose. It is, also, common knowledge that Goodyear was heating sulfur to inhale the fumes for a cold and accidentally discovered the principal of devulcanization when the molten sulfur spilled onto some nearby rubber.

Chemists are timid and self abasing because of the mental attitude devel-

optd during their training. Their technological education is completed with an almost total neglect of the general knowledge of the world about them. They usually have only one interest and this is their beloved science to the practical exclusion of social and civic duties, hobbies, politics and other phases of life which interest the masses. Chemists, as a rule, have no common meeting ground with people in other fields and hence feel ill at ease when in other company or interest. The term "peculiar" is often applied to chemists by laymen.

Something should be done to correct this situation. In the first place the colleges and universities should revise their curricula in such manner as to turn out chemists who are more compatible with their surroundings. Chemists need to make a conscious recovery of pride in themselves and their accomplishments. They should be loyal and conscientious in their work and in turn should expect acknowledgement and true appreciation of their efforts.

—Southern Chemist.



*Kimble Exax Retested Burettes.
Sturdily constructed and fully annealed.*

Shortage and delay are over

Ware as accurate as Kimble Glassware can't be rushed. Its manufacture cannot be entrusted to other than care-taking and long-skilled hands. So perhaps you haven't been able to get all you wanted.

But again you can get, without delay, the sturdy, clear, carefully annealed—and, above all, highly accurate—Kimble Glassware you know so well.

For example, the burettes you see here are

machine-made, with uniform bore and thick walls. We mark them with utmost care, etch them deeply, and fill the calibrations with durable, fused-in contrasting filler. Then the markings are retested for accuracy.

• • •

With Kimble Glassware again readily available, you will want to specify Kimble whenever you order from your Laboratory Supply Dealer.

KIMBLE GLASS TOLEDO 1, OHIO

Division of Owens-Illinois Glass Company



COVER PHOTO

MOUNT HOOD

From Portland

Courtesy of

NORTHWESTERN

MUTUAL FIRE

ASSOCIATION

Home Office

SEATTLE

217 Pine St.

EL. 7200

A. C. S.

Three of the nation's leading analytical chemists have been appointed to the advisory board of "Analytical Chemistry," a publication of the American Chemical Society, it is announced by the editor, Dr. Walter J. Murphy of Washington, D. C.

The new members of the board, who will serve four-year terms, are: Dr. Philip J. Elving, professor of analytical chemistry at Pennsylvania State Colltge; Dr. Wayne A. Kirklin, manager of the analytical division of tht Hercules Experiment Station, Wilmington, Del., and Dr. Edward Wichers, chief of the chemical division of the National Bureau of Standards, Washington. Dr. Elving and Dr. Kirklin are former chairmen of the Society's Division of Analytical Chemistry.

ACS DIPLOMAS

You may have read on Page 866 of a recent C&E News that ACS diplomas are available. Jim Drury, DE. 4500, will soon have applications for these.

CONTAMINANTS

FOWL

There was a tremendous clap of thunder and two hens ran for the henhouse while their friend the rooster made a duck under the front porch.

Having gotten her breath one hen asked: "Why didn't he come in here?"

The other hen: "Aw, he's chicken."

◆ ◆

There once was a young chemist named Brook

With the makings of a cheap, petty crook

He wouldn't pay fees (membership)

'Til the hubs of hell freeze

Now he'd make a success as a cook.

◆ ◆

And then there was the fellow who gave up drinking for the sake of the wife and kidneys.

◆ ◆

A pink elephant, a green rat and a yellow snake walked into a cocktail bar.

"You're a little early, boys," said the bartender. "He's not here yet."

◆ ◆

A man came upon three storks. Engaging them in conversation, the man asked the first stork, "What do you do?"

"I deliver baby boys," the first stork said, drawing himself up on one leg.

"And what do you do," he asked the second stork.

"I deliver girl babies," the stork answered drawing himself up on one leg.

"And what kind of babies do you deliver?" he asked the third stork.

"Oh, I don't deliver any," the third stork said. "I just scare the hell out of people."

◆ ◆

A man's success

Depends, you'll find,

More or less

On his frame of mind.

But a woman can achieve the same

By just depending on the frame.

◆ ◆

No industry can hope to ignore research and live.

PUGET SOUND CHEMIST

PURE ALUMINUM OBTAINED FROM SCRAP BY NEW PROCESS

Aluminum scrap containing silicon and iron can be made to yield pure aluminum by a new process developed at the U. S. Bureau of Mines. The aluminum is dissolved in molten zinc, and the zinc is then distilled from the aluminum.

Detailed information is given in the report entitled "Recovery of Aluminum from Crude Aluminum-Silicon Alloy by Extraction with Molten Zinc", which may be obtained, without charge, from the U. S. Bureau of Mines, Pittsburgh, Pa.

Regional Employment

DR. R. W. MOULTON
University of Washington
MElrose 0630

The Puget Sound Chemist will carry notices of positions vacant and wanted. This service is confidential, and available gratis to all employers and members of the American Chemical Society in this area. Rates for A.C.S. members not in the area \$3.50 per issue for 50 words or less. Non-members, \$7.50.

Some of the nation's leading vitamin manufacturing firms have announced the availability of synthetic vitamin A palmitate to feed, food and pharmaceutical manufacturers. The new product, offered by these firms has a potency range of 800,000-1 million units per gram. The initial bulk price is 30c per million units.

Among the companies offering the synthetic vitamin A palmitate are Hoffman-La Roche, Inc., Nutley, N. J.; Merck & Co., Rahway, N. J., and Chas. Pfizer & Co., Inc., Brooklyn. All of these companies have expanded their manufacturing facilities greatly for large scale commercial production of the product.

Containers for bulk shipments of the synthetic vitamin A are seamless aluminum bottles, sealed under nitrogen.

No man can possibly improve in any company for which he has not respect enough to be under some degree of restraint.

SERVICE BY

Laucks

The Industrial Research Division

For the investigation of projects that may benefit the industrial growth of the area we serve.



LAUCKS LABORATORIES INC.

Established 1908

DR H S BENNETT
DEPT OF ANATOMY UNIV OF WASH
SEATTLE 5 WASH

Sec. 34.66, P.L. & R
U. S. POSTAGE
PAID
Seattle, Washington
Permit No. 54

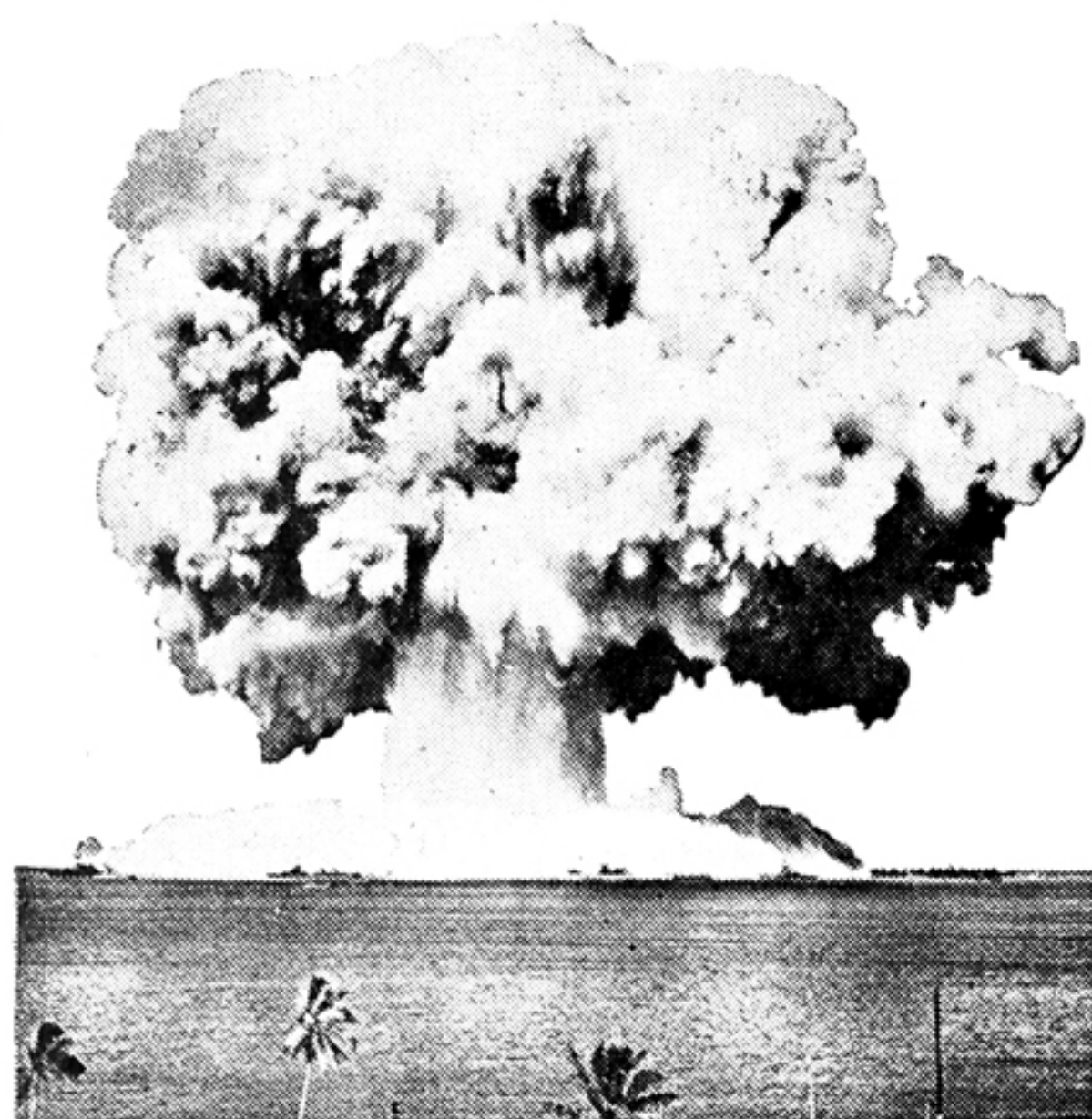
Announcing...

Uranium Metal A.R.

HIGH PURITY—IMMEDIATELY AVAILABLE

● Supplied in *stick form* for the first time—Easily worked into any desired shape!

IMMEDIATELY AVAILABLE FOR RESEARCH—High purity URANIUM METAL A.R. is supplied along with 400 other superior quality A.R.'s by Mallinckrodt and more than 55 conveniently located distributors.



*[All transactions are subject to
the licensing requirements of the
U.S. Atomic Energy Commission.]*

Distributed by:

C. M. FASSETT COMPANY, West 9 Trent Avenue Spokane 8, Wash.

SHAW SURGICAL CO., Yamhill and Ninth Avenue Portland, Oregon

Uniform, Dependable
Purity



83 Years of Service to Chemical Users
Mallinckrodt Chemical Works

Mallinckrodt Street, St. Louis 7, Missouri • 72 Gold Street, New York 8, New York
Chicago • Cincinnati • Cleveland • Los Angeles • Montreal • Philadelphia • San Francisco