



*The*

# **PUGET SOUND CHEMIST**

*Bulletin of the Puget Sound Section of the American Chemical Society*



# "Baker's Analyzed"

## C.P. Mineral Acids



Packaged with acid-tite closures. Available in 5-pint bottles—also handy 1-pound bottles. *Actual analysis on every label*, which costs us more to make, but costs you less to use. Available at your favorite Laboratory Supply House.

J. T. Baker Chemical Co., Executive Offices and Plant: Phillipsburg, N. J.  
Branch Offices: New York, Philadelphia, Boston and Chicago.

Purity defined—not to "maximum limits"—but to the decimal by actual lot analysis. That's the story of the Baker's Analyzed label.

**"Baker's Analyzed"**  
C. P. CHEMICALS AND ACIDS



BAKER'S ANALYZED C. P. CHEMICALS ARE SOLD IN YOUR AREA BY:

**SCIENTIFIC SUPPLIES COMPANY**      **Seattle, Washington**



# FREDERICK ROBERT ARMBRUSTER, Retiring Editor



**Frederick R. Armbruster**

Frederick Robert Armbruster has been the first editor of the printed PUGET SOUND CHEMIST. In this time-consuming and sometimes exasperating post, he has served well for every member of this section of the Chemical Society. While extending our thanks to him, let us see who this retiring editor is, and what he has done and is doing.

He and his family have long been interested in the pulp and paper industry. His grandfather and family came to the United States from Stuttgart, Germany, in 1890, and immediately became engaged in pulp mill operations at Palmer Falls, New York. His father, Mr. G. John Armbruster, was born in Germany in 1881, served in Cuba in the Spanish-American War, and then in the Philippine Islands in the Insurrection. In 1900, his father joined the Nekoosa-Edwards Paper Company, at Nekoosa, Wisconsin, on the Wisconsin River, a sulfite pulp mill then noted for trying new things in much the same way as the Brown Company is today. From Nekoosa have come such well known persons as the late Mr.

G. S. Brazeau, Mr. "Strangler" Lewis (Mr. G. John Armbruster's brother-in-law), and Fred himself, who was born there on August 7, 1912.

Fred's moves with his family during the next four years were occasioned by the successive engagements of his father at three paper mills; at Studenville, Ohio; Carthage, New York, and Richwood, West Virginia. In 1916, the family moved to Merritton, Ontario (Lincoln Paper Company, the first to buy chlorine and make its own calcium hypochlorite bleaching liquor), where Fred entered the first grade and immediately fell in love with the teacher. When in 1921 the family moved to Edmundston, New Brunswick (Fraser Companies, Ltd.), Fred was scheduled to enter the fourth grade but was instantly promoted to the English-speaking fifth when it developed that the fourth grade teacher spoke no English and Fred spoke no French. But he learned adequate French during the remaining years of his grade and high education in Edmundston.

During the years of 1921 to 1928, Mr. G. John Armbruster operated the Fraser Companies plant at Edmundston, and in the last year or two of this period, he built the dissolving pulp mill of the Restigouche Company at Campbellton, New Brunswick (where Jacques Cartier, about 1540, saw and named this bay of the Gulf of St. Lawrence the Bai de Chaleur). Fred's father operated the Restigouche Mill until May, 1930, when he moved to Everett, Washington, to operate the then Puget Sound Pulp and Timber Company plant, and, since 1936, that of the Soundview Pulp Company. He retired in March, 1946, and is now living in Everett.

Freshman Fred joined the 400 students at the University of New Brunswick in 1929 and spent a year there in study of science and chemistry. During this period upper classmen enforced a ban on haircutting and Fred's luxuriant hair was parted in the middle and combed down

*(Continued on page 19)*



# *The* **PUGET SOUND CHEMIST**

Published monthly by the Puget Sound Section, American Chemical Society

Volume VIII

March, 1947

Number 3

EDITOR: G. OTTO ORTH, JR., 2919 First Ave. South, Seattle 4, Wash., MA. 4090

ASSISTANT EDITOR: ED. LINGAFELTER, University of Washington, Seattle, ME. 0630

BUSINESS MANAGER: RODNEY WILLIS, Standard Chemical Engineering Co., WE. 4666

ADVERTISING MANAGER: HAROLD RUDOW, Scientific Supplies Co., EL. 1134



## **Directory — Puget Sound Section**

### *Chairman*

HERBERT R. ERICKSON  
Tower Co., Inc.  
5421 First Ave. S., Seattle 8

### *Vice-Chairman*

JOSEPH L. MCCARTHY  
Department of Chemical Engineering  
University of Washington, Seattle 5

### *Secretary*

COLLIS C. BRYAN  
Monsanto Chemical Co., Western Div.  
911 Western Ave., Seattle

### *Treasurer*

Q. P. PENISTON  
Bagley Hall, Univ. of Washington  
Seattle 5, Wash.

### *Program Committee*

D. M. RITTER, Chairman  
Bagley Hall, Univ. of Washington  
Seattle 5, Wash.

### *Finance Committee*

JOHN MEILER, Chairman

### *Publicity Committee*

LESTER D. BERGER, Chairman  
Carbide and Carbon Chemical Corp.  
2900 First Ave. S., Seattle 4

### *Social Committee*

JOHN SCOTT, Chairman

### *Membership Committee*

R. C. SCOTT, Chairman  
Adhesive Products Co.  
3400 Thirteenth Ave. S.W.  
Seattle 4, Wash.

### *Professional Practice and Legislation*

W. R. MOFFITT, Chairman

### *Library Committee*

H. DAUBEN  
L. H. BROWN

### *Employment Committee*

JOHN STEPHAN, Chairman  
Monsanto Chemical Co., Seattle

### *Councilors*

GEORGE H. CADY  
R. W. HARRISON  
T. S. HODGINS  
A. J. NORTON

### *Representatives to the Puget Sound Engineer Council*

R. P. ERWIN

FRANK WEST

*Regional Activities—*VICTORIAN SIVERTZ

### **EDITORIAL ADVISORY BOARD:**

FRED AMBRUSTER, Chairman  
JOSEPH L. MCCARTHY

LESTER D. BERGER  
D. M. RITTER



# March Speaker . . .



**DR. HENRY EYRING**

Henry Eyring was born in the cattle country of northern Mexico in 1901. After receiving a mining and then a metallurgical engineering degree at the University of Arizona, he took his Ph.D. in chemistry in 1927 at the University of California.

Dr. Eyring then served as instructor and as research associate at the University of Wisconsin for two years. This was followed by a year in Berlin as a National Research Fellow, followed by a year at the University of California as lecturer. From 1931 to 1946 he was a member of the chemistry faculty of Princeton University. From October, 1944, until September, 1946, he directed the Fundamental Research program of the Textile Foundation, which is housed in the Textile Research Institute Laboratories at Princeton, New Jersey. He is now Research Professor and Dean of the Graduate School of the University of Utah.

**Chemical & Engineering News —  
Feb. 17, 1947  
HAVE YOU READ IT?**

## **"The Structure and Mechanical Properties of the Natural and Man-Made Fibers"**

**By HENRY EYRING**

The experimental and theoretical research program into fibers carried out at the Textile Foundation will be briefly presented. Analysis of these data reveals the mechanism of the process of creep and the size of the units involved. These properties are related to the chemical and physical structure of fibers. The question as to how successfully one can now anticipate fiber properties with a specified composition and history, is then summarized.

## **Comments On the Hancock Report**

**By A. J. NORTON**

Reading of the Hancock report on the "state of the A. C. S." is stimulating. The very fact that we got a Hancock report and that it was published for all to read is inspiring.

The report emphasizes the unrest in the A. C. S.—and that very unrest is refreshing, for it shows that in spite of size and age the A. C. S. is still alive.

The report also emphasizes the universal approval of our magazines. Their great value lies in part in the broad base of the society and the almost unlimited opportunity to publish. That should not be changed, but a new magazine or the extension of *Chemical Review* to a magazine limited to the publication of outstanding scientific papers only might attract to our journals a higher grade of paper.

The national meeting standards could also be tightened so that the papers of the national meetings were of better quality and at the same time full opportunity to publish could be obtained by expansion of the local and regional meetings.

A true professional scientist needs no

*(Continued on page 19)*



# *March Meeting*

**PUGET SOUND SECTION OF THE  
AMERICAN CHEMICAL SOCIETY**

*Friday • March 14, 1947*

**7:30 P.M.**

**Address • Bagley Hall • Room 140**



**S P E A K E R**

**DR. HENRY EYRING**

Dean of Graduate School, University of Utah

**S U B J E C T**

***“Structure and Mechanical Properties  
of Natural and Man-made Fibres”***



**REFRESHMENTS AND SOCIAL HOUR IMMEDIATELY FOLLOWING  
THE MAIN ADDRESS**

# A Letter to the Editor...

By IRVING F. LAUCKS

*Herein is presented an article on research and the entrepreneur which we feel is of creative interest to all young scientists and chemists.)*

SIR: You have asked me for some remarks on industrial or applied research or chemists to read. Not unsolicited would I presume to offer advice to the chemist, who is descended in direct line from that original researcher—the old alchemist. Certainly the chemist, of all people, should know all about research and its benefits. But sometimes I wonder whether the layman today hasn't a better appreciation of research and what it will do than the chemist himself has. It may be too old a story to the chemist. Or perhaps he is like the man who can't see the forest for the trees. But if he is, surely the rest of the world is not. The world today believes in the power of research, perhaps even exaggerates it, if that were possible.

The benefits of research are to be seen everywhere. It is true that research is also blamed for some evils. But if the so-called evils are looked into carefully it will be found that it is not the scientist who made the discoveries that is at fault but the ignorance of the world in not using these discoveries properly. The man who discovers and develops something new has his hands full without being asked to remodel human nature at the same time. There should be other specialists who have this for their job.

We may now ask who gets the benefits of research. First, the public is perhaps the chief beneficiary, which is of course right and proper, for there are so many more of them. The public doesn't always recognize the benefits it receives from research. While the public is quick to place the blame for evil results on research, such as in the case of the atom bomb, not all of the public realizes that most of the good things it has are also the result of research.

The things which people want most in the world today, such as good cheap automobiles, radios, nylons, and so on, are the result of years of research. They are cheap and good largely because the researcher found out how to make them that way. No researcher will be sorry because the biggest benefit goes to the public. But at the same time every researcher—chemist, physicist, engineer, or whatever—shouldn't let one opportunity pass to remind the public of its debt to research.

Next in line of beneficiaries I wish I could say is the researcher himself. But I am afraid this would be quite a way from the truth. Second place undoubtedly belongs to the entrepreneur of research. And so far this entrepreneur has been almost entirely "Big Business." Big Business found out long ago, probably from watching the Germans, what a powerful vehicle research is for outdistancing competition. In general, Little Business still has this to learn, but learn it it must if it is to escape from being swallowed by Big Business. Its lack of understanding of what research means to business and how to apply it is the greatest handicap Little Business has in its race with Big Business.

Last in the list of beneficiaries is the researcher himself. What does research do for him? First, it gives him a job. The more research, the more jobs, and if the old law of supply and demand had not been repealed (as is claimed by some "modern" thought as far as labor is concerned), it should increase the compensation of the researcher. Then if he is lucky enough to be attached to a far-sighted, sensible entrepreneur, and if he is fortunate enough to be a successful researcher, he will participate to some extent in the fruits of his success. When I said "fortunate" I meant—if he is willing to work hard enough. I cite as au-

*(Continued on page 8)*



## LETTER TO THE EDITOR

*(Continued from page 7)*

thority Thomas Edison's "Genius is 95% perspiration."

It is undoubtedly true that some industrial researchers have received very little if any extra benefit from important contributions they have made. But most entrepreneurs of research realize that the greatest incentive to good research work lies in the researcher's hope of reward. And so the interest of entrepreneur and researcher are tied together, and for that reason, if none other, most researchers who accomplish results of real economic value share to a certain extent in the profits accruing from their work.

I am not belittling the entrepreneur's contribution to research or decrying the fact that he receives the greater share, as between him and the researcher. The entrepreneur is an essential factor in all progress, not a parasite living on the labors of others. If any researcher is inclined to think that the entrepreneur is a parasite, let him try being one himself for a while!

In this situation now, how can the chemist, for example, profit to a greater degree than he ordinarily does by research? Are the major benefits only for the entrepreneur, or can the research chemist be his own "entrepreneur"? There have been plenty of examples in the past of technical men who brought up their own brain children and later were supported by them. Are there any reasons why they shouldn't do the same in the future? What must a scientific man do or be to strike out on his own to reap the rewards of his own research?

First, he must have an idea—a REAL one. How does he get this real idea? Is it a "flash of genius" or does he work for it? Well, getting ideas is a good deal like getting married. Most men do not seek out some "ideal" woman they have pictured in their dreams, but they fall in love with some girl they bump into every day. And so it is with ideas. They are not often pulled out of the blue sky, but they grow from one's daily work, daily observation, daily problems. A certain

amount of experience is necessary before ideas begin to sprout. When I was starting as a chemist I used to wonder how a man ever got an idea for research, but after more experience I discovered the difficulty then was to choose from among the number of attractive ideas which kept bobbing up.

In late years the belief has spread that research must be done by large organizations, by team work, that there is no place anymore for the "attic inventor" or the individual in research. But this view overlooks the fact that research organizations or teams develop and perfect ideas which have largely been the work of individuals. The U. S. Patent Office recognizes that a corporation cannot make an invention. Patents are granted only to individuals.

If, however, a chemist is working by day on such unstimulating work that he gets no ideas from a real study of an application to it, then he can still work in his spare time in his own basement laboratory. (An attic never was a good location for a lab.) Perhaps the basement lab is not too well equipped, but a hundred dollars worth of apparatus is enough to incubate a whole flock of ideas.

But the researcher who would be an entrepreneur will have to work more than 40 hours a week, with no overtime. If there are chemists' unions, I don't know what their rules are about such practice, but I am sure that no idea is going to be developed, or even hatched, without a lot more effort than many men seem willing to devote to their jobs. The man who wants to profit by developing his own idea will have to look forward to a lot of hard work mixed with a lot of grief before the profits start rolling in. The man who wishes to be the chief beneficiary of his own ideas must also have other qualification. He must not worry too much about SECURITY. Instead of coasting along in the inland waterways, he must be willing to head out to sea, even though he has only a fishing boat instead of a liner. It seems to me that today the great emphasis is

*(Continued on page 21)*



# MONSANTO CHEMICAL COMPANY



SERVING INDUSTRY WHICH SERVES MANKIND

WESTERN DIVISION

OFFICES

911 Western Ave.

MAin 4203

Seattle, Washington



## OUR COVER PHOTO

Courtesy of  
NORTHWESTERN MUTUAL FIRE  
ASSOCIATION

•

*Here the Skier looks across the vast expanse of snow with wonderment and anticipation. The Cascades are truly nature's wonderlands fancied in never-ending triumphs of beauty and splendor.*

## APRIL MEETING

**Special cards  
will be mailed  
prior to  
meeting**

### **NORTHWEST LABORATORIES** CONSULTING ENGINEERS—CHEMISTS

Second Avenue and James Street  
Seattle 4, Washington

Phone MAin 0680

**Applied Research and Development  
Physical and Chemical Testing  
Engineering Surveys — Assaying**

## THE CHEMICAL INDUSTRY —1947

(Arthur J. Norton, Consulting Chemist, has just returned from one of his extensive trips through the east and herein presents his analysis for 1947.)

The chemical industry as a whole is apparently unanimous in its belief that 1947 will be a big year from a production standpoint. This optimistic attitude is held in spite of raw material shortages, building and expansion difficulties, uncertainties regarding prices and foreign markets, manpower shortages and all the other troubles that are chronic and look as though they would stay with us most of the coming year.

Unquestionably the high production rate will fill certain pipe lines sooner than anticipated. There may be price breaks in some commodities. The industry as a whole anticipates these events, however, and since most of the basic chemical materials have lagged behind the general price rises it is felt that the shock will not be too serious.

Many new uses for chemical products have developed during the war years. The detergent field has expanded beyond all belief. Agricultural chemical usage has grown enormously. Since many of the new chemical uses are based on benzol and the production of benzol from coal is limited, it may be that benzol and other aromatics will be produced from new sources before the end of the year. This may also mean a stabilization of price levels for many aromatics at higher than pre-war levels.

Other trends are less easily visualized.

It is certain, however, that the optimistic potentials will not be easily reached. Increased production efficiency is necessary to maintain high wage levels to amortize high equipment costs, and to meet the high taxes. This may mean basically new processes in some cases—such as those based on molecular activation by supersonics or high-fre-



quency electricity as a method of reaction control.

Higher quality standards will be necessary during the coming year, and increased research efficiency. Above all credit and sales departments will have to be revised and revitalized to prevent disastrous breaks.

It is certain, however, that the growing trend to use petroleum, wood, sub-bituminous coals, acetylene and other sources of chemicals than coal will continue during 1947.

## **NORTHWEST PLASTICS SOCIETY FORMS**

February 13 a group of men interested in forming an active plastics society gathered for a supper at the College Club in Seattle and formed a new organization which will be formally called the Northwest Plastics Society.

The meeting was presided over by Lew Schatz of the General Plastics Manufacturing Co. of Tacoma and a formal election was held. Robert H. Anderson of Northwest Plastics Industries was elected president, William H. Lampert of Plastic Sales and Service, vice-president, and Leo Livingston of Miller-Freeman Publications was elected secretary-treasurer. The executive board will be comprised of John Bogner, Interlake Chemical; Leonard Vaupel, Sound Plastics; Jim de Schazor, Beeman Molded Products of Portland, and Lew Schatz as ex-officio president.

Nineteen charter members were signed up at the first meeting. By-laws were drawn up prior to the meeting by John Bogner, Leonard Vaupel and Robert H. Anderson and were revised and accepted by the group.

The theme of the organization is to develop and forward the plastics industry in the Northwest.

Details of the membership can be obtained from the secretary-treasurer, Leo Livingston, at 71 Columbia Street, c/o Miller Freeman Publications, Seattle.

- **DEVELOPMENT**
- **RESEARCH**
- **CONTROL**

Strategically located in this, the very heart of the nation's plywood industry, our enlarged facilities offer every means of rendering a prompt service. Chemists, alert to the needs of industry, are always ready to work hand-in-hand with you in the development of special products to your own specifications. Call **MAin 3536**

•  
**Manufacturers of Kaseno 580  
exterior plyform and  
moisture resistant  
glues**

•  
*Adhesive*  
**PRODUCTS  
COMPANY**

**Home Office and Plant  
3400 13th Avenue Southwest  
Seattle 4, Washington**



## **Lignin Sulfonic Acids I— Purification by Continuous Dialysis**

By **QUINTIN P. PENISTON** and  
**JOSEPH L. McCARTHY**

A study has been made of a continuous dialysis procedure for isolation of pure lignin sulfonic acids from sulfite waste liquor. Rates of dialysis of various low molecular weight components of the liquor have been determined and compared with dialysis rates of known substances: simple sugars and sodium p-toluene sulfonate.

It is shown that 20 to 30 per cent of the lignin sulfonic acid in sulfite waste liquor, depending on its source, is dialyzable at a rate not greatly lower than that for glucose or sodium p-toluene sulfonate. This fraction of the lignin sulfonic acid is thus indicated to be of low molecular weight, probably not over 1,000, and can thus consist of not more than 3 or 4 of the primary oxygenated propane building units. The remaining 70 to 80 per cent of the lignin sulfonic acid is substantially non-dialyzable and is thus believed to be considerably higher in molecular weight than the dialyzable fraction.

Sodium ligno sulfonate samples prepared from the non-dialyzable lignin sulfonic acid fraction from two widely different commercial sulfite waste liquors were found to have very nearly the same empirical composition. When calculated to a sulfur and ash-free basis, this empirical composition is in close agreement with a hypothetical structure for an oxygenated guaiacyl propane polymer. From this study it is concluded that continuous dialysis is a satisfactory procedure for isolation of high molecular weight lignin sulfonic acids of a high degree of purity.

## **Electric Furnace Fusion of Olivine and Rock Phosphate for the Production of a Fertilizer**

By **R. W. MOULTON** and  
**G. S. GREAVES**

In view of the possibilities of the fusion of olivine and rock phosphate as an industrial process for the production of a phosphatic fertilizer, studies of the process are being conducted at the University of Washington.

The work is being sponsored by the Bonneville Power Administration, the immediate objectives being:

1. The determination of factors effecting yield and quality of product.
2. The evaluation of the  $P_2O_5$  and fluorine losses in the process.
3. The determination of the nature of the reaction.
4. The identification of the phosphate compounds in the final products.

Results to date indicate that the rate of dissociation of the apatite of the phosphate rock is first order with respect to the apatite and that the rate is directly proportional to the concentration of the olivine. The results are not conclusive in that their interpretation is hindered by two effects: (a) the large  $P_2O_5$  losses occurring under the experimental conditions, (b) the uncertain action of the fused product upon quenching.

### **REGISTERED CHEMICAL ENGINEERS**

•  
Telephone WEst 4666  
•

### **STANDARD CHEMICAL ENGINEERING CO.**

Professional Service to Industry  
•

Laboratories  
R. M. WILLIS      1745 Harbor Ave. S.W.  
General Manager   SEATTLE 6, WASH.





## For chemical purity plus... Specify B&A REAGENTS

In selecting reagents for your laboratory, specify B&A for *chemical purity PLUS product diversity and availability*:

The PURITY . . . guaranteed by the skill, science and technological developments which General Chemical Company's Baker & Adamson Division has gained in 65 years of "Setting the Pace in Chemical Purity?"

The DIVERSITY . . . more than 1,000 purity products bear the B&A "Shield of Quality." From them you can order your every requirement.

The AVAILABILITY . . . extensive

stocks of B&A Reagents are maintained in the Company's *own* regional distributing stations from coast to coast. The one serving your territory can supply your month-to-month needs swiftly, surely, steadily.

Remember this when you buy laboratory reagents. Specify B&A for *chemical purity PLUS product diversity and availability*—advantages that really count in operating any laboratory efficiently. Your B&A Technical Serviceman can start special, personalized service for you today. Phone or write the nearest office below.



**GENERAL CHEMICAL COMPANY**

**BAKER & ADAMSON DIVISION**

40 RECTOR STREET, NEW YORK 6, N. Y.

Seattle 1—1326 Fifth Avenue—Elliot 5287

Los Angeles 21—2461 East 8th Street—Van Dyke 1001

San Francisco 4—235 Montgomery Street—Douglas 0904

SETTING THE PACE IN CHEMICAL PURITY SINCE 1882



## Thanks for Membership!

Nearly a year ago the membership chairman wrote a brief article for your *PUGET SOUND CHEMIST*. In it each member was reminded that, in addition to the listed members of the committee, he or she was an unofficial but vitally important member of that committee. The facts were pointed out that no three or four individuals could materially increase the membership of this section and that only by the united efforts of all could an effective increase in our rolls be obtained.

Apparently quite a number of members took this statement to heart for the total membership today stands at approximately 326. The official count of members of this section is issued by the national A.C.S. office near the end of February each year for the fiscal period, December 1 through the following November 30. At this writing the figures for 1946 have not yet arrived; however, our secretary's records indicate we had approximately 312 members at that time.

This was an increase of 29.4 per cent over last year, as compared with an increase of 17 per cent for the previous year.

Most of this increase in membership is a reflection of the increase in interest and active participation by all the members; it is not the results of the efforts of any one individual member or small group. Several people have each secured from three to five new members for the Puget Sound Section this past year and many others have sent in to the membership chairman, or the section secretary, the applications of one or two who became members. This was the type of cooperation that has made your section one of the fastest growing in the entire Society. It is the type of cooperation and interest that will keep your section growing rapidly and will make it of interest to you.

Keep up the good work. If you need application blanks, ask any of the officers or committeemen for them. When you get them filled out send them in to the local secretary or membership chair-

# CHEMICALS

## INDUSTRIAL • AGRICULTURAL RAW MATERIALS

*Largest and Most Complete Stocks in Northwest*

---

# VAN WATERS & ROGERS

INCORPORATED

SEATTLE

PORTLAND

SPOKANE

BOISE



man and they will forward them to national headquarters.

The Membership Committee greatly appreciates the help given it by all the members last year and hopes they will come through again in an equally responsive manner this year.

## College of Puget Sound

A chapter of the American Chemical Society was reorganized at the College of Puget Sound during the fall semester because we, as students, feel that through the Society we shall have a better view of the chemical world.

As a part of the activities of the chapter we have had two guest speakers. Dr. Cady, from the University of Washington Chemistry Department, spoke on January 9 regarding research in the field of fluorine and its compounds. On February 14 John R. Callahan, Pacific Coast Editor for Chemical and Metallurgical Engineering, presented to us a discussion of the aspect of chemistry in Pacific Northwest industries.

## DR. CHALMERS VISITS

At the February meeting we were pleased to have Dr. William Chalmers, Managing Director of Western Chemical Industries, Vancouver, B. C., with us. Dr. Chalmers expressed an interest in our section and would like to extend an invitation to members to attend their April 25th meeting in Vancouver. Our section has fourteen Canadian members who belong to the A.C.S. Dr. Chalmers said there were about fifty qualified members in the Vancouver area and expressed a desire to form some type of a joint group with the Puget Sound Section.

**NOTICE:** *To those who wish to obtain the Bulletin of the Puget Sound Technical Society — please contact Richard P. Erwin, 2105 Park Road, Seattle 5, Washington, or Frank West at the University of Washington.*



**Organic Solvents • • • Compressed Gases**  
**Industrial Chemicals • Flotation Reagents**

Great Western Division

**THE DOW CHEMICAL COMPANY**

SAN FRANCISCO

CALIFORNIA

Seattle

Los Angeles



## ACS and the Individual

In a recent statement appearing in *Chemical and Engineering News*, Mr. Alden Emery, the secretary of the Society, pointed out that the local section allotments from the treasury of the Society are, in fact, payments for the services which the Society expects the sections to render.

It is possible to carry this line of thought a bit further and apply it to the individual member of the Society. We, who are members, are often prone to feel, it is safe to say, that by paying our annual dues into the treasury we have discharged our single responsibility to the Society, and from that point on it is up to the Society to serve us with publications, meetings and all the other advantages which it offers. This smug line of thought is valid enough, save for one fallacy, which is fatal. The Society is, after all, composed of individuals, and were all these individuals of the passive type who expect to be served by the Society merely by virtue of their monetary contributions, it is a certainty that today the Society would not exist.

The American Chemical Society is one of the largest professional organizations in the world. It is officially chartered by the Federal Government of the United States of America. Membership in such an organization carries with it responsibilities which should not be lightly taken. Membership in this group should, in fact, be regarded as a consideration extended by the Society in return for which certain services are expected. The direction these services may take is largely a matter for the individual member to decide.

Service to the Society need not be interpreted in the narrow sense, however. As members of a professional group, highly educated and trained, not only in technical matters, but in terms of general background, we have a responsibility as citizens. As citizens we should inform ourselves concerning the vitally important public issues of the day, and con-

sider and analyze these issues in terms of the objective methods in which we have been trained. We should also exercise our right of free speech. Only by the actions of intelligent individuals, of which this Society is an organized group, can rationality hope to overcome prejudice and emotion in public affairs.

By acting as intelligent citizens, with emphasis on the verb acting, we can serve the interests of the Society well.

—BUNSEN

### **PACIFIC TESTING LABORATORIES**

**Chemists & Engineers**

**3215 Western Ave.    Seattle  
GARfield 3610**

### **ARTHUR J. NORTON**

**Consulting Chemist**

•  
**RESIN, PLASTIC and  
CHEMICAL RESEARCH  
and DEVELOPMENT**

•  
**Associates  
G. OTTO ORTH, JR.  
L. H. BROWN**

•  
**2919 First South                      Seattle  
MAin 4090**





***LAUCKS LABORATORIES INC.***

**... Symbolizing long experience  
in the field of industrial research  
and development.**

***Established 1908***

**FINANCIAL SUMMARY OF PUGET SOUND CHEMIST  
as of December 31, 1946**

ASSETS		LIABILITIES	
Bank Balance .....	\$ 106.14	Accounts Payable .....	\$ 441.44
Accounts Receivable, Less Discounts .....	419.74	Surplus .....	84.44
	<u>\$ 525.88</u>		<u>\$ 525.88</u>

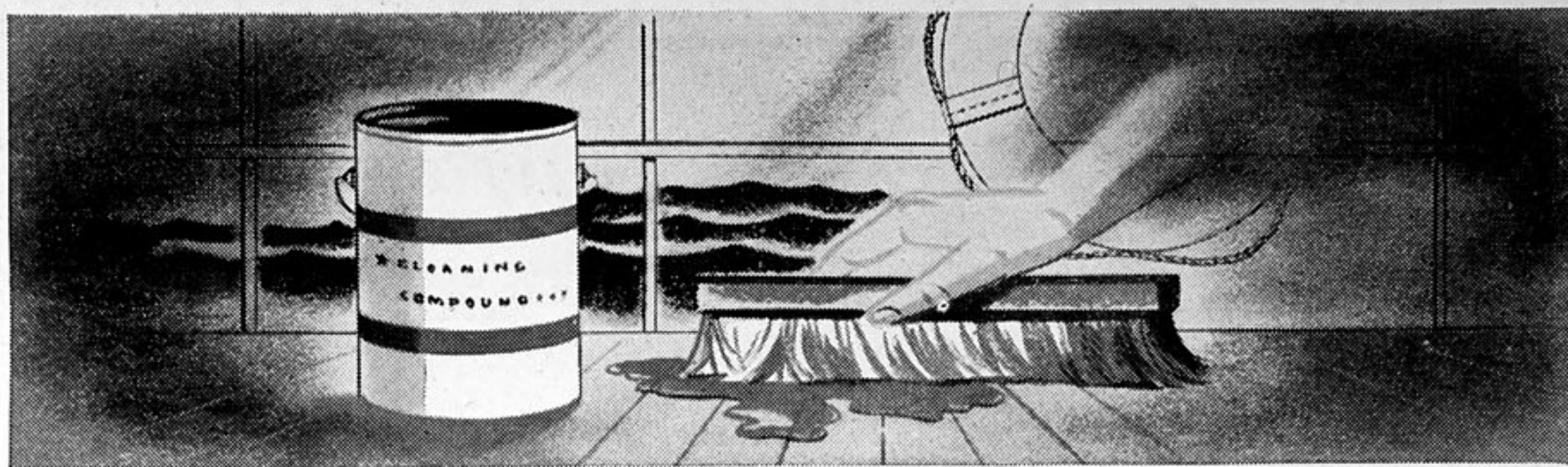
**Summary of Operations to Date**

EARNINGS		EXPENDITURES	
Advertisements:		Printing (pd) .....	\$2,026.33
Payments .....	\$2,200.02	Mailing Costs, etc. ....	66.00
Accounts Receivable, Less Discounts .....	419.74	Unitemized .....	1.55
	<u>\$2,619.76</u>	Accounts Payable (printing) .....	441.44
		Surplus .....	84.44
			<u>\$2,619.76</u>

**Balance with First National Bank**

Total Receipts .....	\$2,200.02
Total Payments: Printing .....	\$2,026.33
Mailing .....	66.00
Unitemized .....	1.55
	<u>2,093.88</u>
Bank Balance .....	<u>\$ 106.14</u>





enamels, spars and varnishes formulated with No. 1001 and No. 1003

# SUPER-BECKACITES

are super-resistant to water . . . wear . . . chemicals

Surfaces coated with spars, enamels or varnishes based on No. 1001 and No. 1003 Super-Beckacites can take anything—from cleaning compounds to pounding wear. Special RCI methods make these pure phenolic resins sure sources of the super-qualities essential for marine and outdoor use. Waterproof, chemical-

proof and wearproof, they are the backbone of the finest products. Back your reputation with the best—standardize on No. 1001 and No. 1003 Super-Beckacites. The only difference is in color—X or lighter for No. 1001—F-E for No. 1003. For formulating facts write the Sales Department at Detroit.

*"Supplying—not competing with—the makers of better surface coatings."*

## REICHOLD CHEMICALS, INC.

General Offices and Main Plant, Detroit 20, Michigan



Other Plants: Brooklyn, New York • Elizabeth, New Jersey • South San Francisco, California  
 Seattle, Washington • Tuscaloosa, Alabama • Liverpool, England • Paris, France • Sydney, Australia  
 Zurich, Switzerland • Milan, Italy • Rio de Janeiro, Brazil

**SYNTHETIC RESINS • CHEMICAL COLORS • PHENOLIC PLASTICS • INDUSTRIAL CHEMICALS**



## FRED ARMBRUSTER . . .

*(Continued from page 3)*

tightly on each side of his head; his trousers were pressed on the side only.

When the family moved West, Fred came along and began study of chemical engineering at the University of Washington in September, 1930. He became associated with the Phi Kappa Sigma and with the Ammonia Socii fraternities. During three summer vacations, he worked in the Montecristo Hotel in Everett, loaded 40-pound bales of pulp, and served as a helper in the bleaching department of the pulp mill. He graduated from the University of Washington in March, 1934, with the degree of Bachelor of Science in Chemical Engineering.

Fred's first professional job was with Weyerhaeuser Company, Pulp Division, in Longview, Washington. He there carried out various studies in the research and control departments. During his stay in Longview, he carved from a wood block the figure of a knight on a horse which now stands over the mantelpiece in his home.

He was married to Audrey Beatrice Olson of Everett on June 20, 1936.

In 1937 Fred was called to the Powell River Company, at Powell, River, British Columbia, as Assistant Sulfitc Superintendent. This plant is located on the Coast about eighty miles north of Vancouver and is accessible by boat or airplane only. After a busy time at Powell River, which among other things included developing a masterly photographic technique and commercial sale of several of his photographs for magazine covers, Fred came to Seattle in 1940 with the Dow Chemical Company; he is now the busy Manager of the Seattle Office.

In his spare time, Fred is a member of the American Institute of Chemical Engineers, Society of the Plastics Industry, Technical Association of the Pulp and Paper Industry, and is Secretary-Treasurer of the American Pulp and Paper Mill Superintendents Association, and, of course, the American Chemical Society. It was perhaps primarily Fred's feeling that the local members of the

American Chemical Society should have a voice that has motivated him and his associates in carrying through successfully the organization and the early publication problems of THE PUGET SOUND CHEMIST of which we are so proud. We appreciate Fred's contributions and hope that in the future his productive activities for the American Chemical Society can continue.

---

## The Hancock Report . . .

*(Continued from page 5)*

urge to continue his scientific education—merely opportunity.

The Hancock report points out that there is a large group in the A. C. S. who feel the urge for more than a vocational training. The Society, when small, but with its broad base and common language, gave this opportunity through personal contact. Today some other means must be adopted to substitute for the free interchange obtainable at the larger meetings.

There is little opportunity in 4 to 7 years of college training for a chemist to become more than a trained technician. The fact that a very great percentage of the graduates use this training to get a highly specialized job in a specialized industry again tends to limit the normal educational opportunities.

The shortage of chemists in the last few years—the economic law of supply and demand—has raised our salary scale to a reasonable level.

The mills of mass vocational education are grinding out many men trained to work only as chemists.

As the impact of this new group of specialists becomes apparent a reactionary trend will be inevitable unless some positive approach is apparent. The normal reaction of an established group is to try to hold what they gained largely as a result of the operation of an economic law, by restricting the operation of the law when less favorable to them. This is a negative approach, as King Canute discovered when he ruled that the tide should not come in.

*(Continued on page 21)*



# *fits* LABORATORY THERMOMETERS

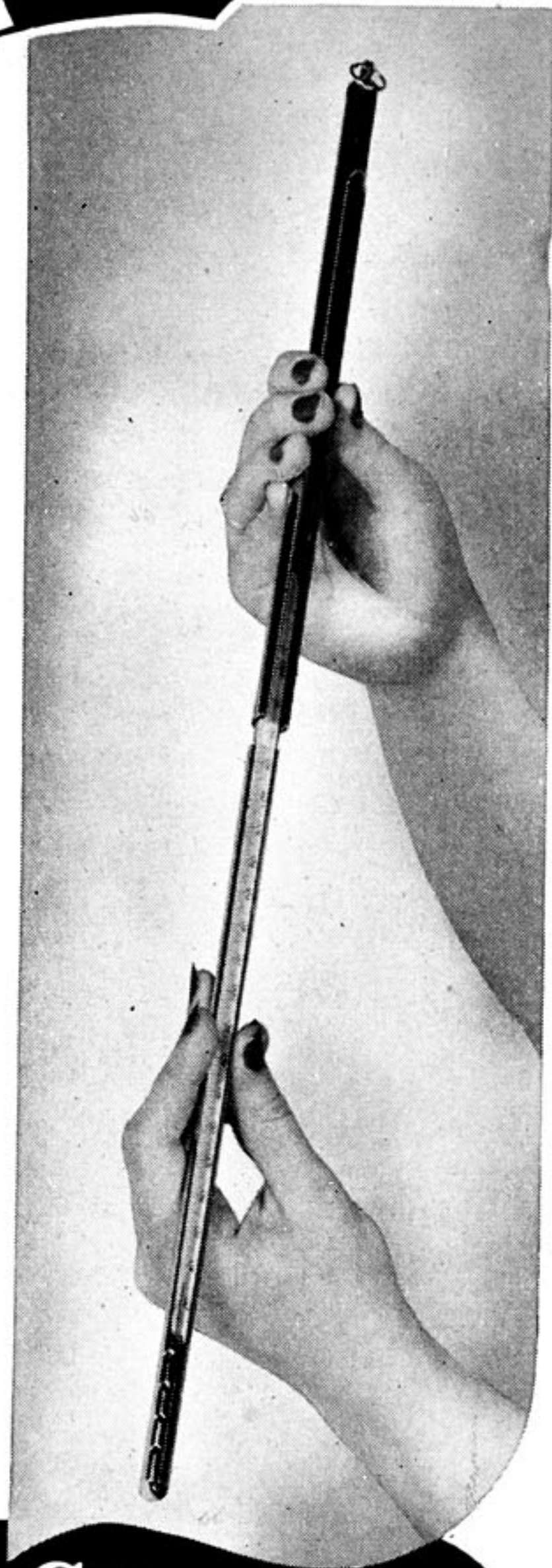
OF MANY  
SIZES

No matter how careful one is when working around paint vats, ovens, tanks or other apparatus required in plant control or laboratory procedure, chemical thermometers are frequently broken. These fragile glass stems can easily disrupt an important and expensive test. Adequate protection is offered in the form of an ingenious, patented thermometer armor which telescopes. The length of this armor is adjustable so that thermometers varying from 10 to 16 $\frac{3}{4}$  inches in length and up to 5/16 inch in diameter will fit. The saving in thermometer breakage with one of these armors soon pays dividends.

The telescoping case is made of brass, and the immersion end is perforated for circulation. A metal ring at the top of the case permits suspending the thermometer where desired. A slit extends along the front length of the armor to enable easy reading of the mercury meniscus.

## No. 19298 Cenco Adjustable

Thermometer Armor.....Each \$2.50



# CENTRAL SCIENTIFIC COMPANY

*Scientific CENCO Apparatus*

New York BOSTON San Francisco CHICAGO Los Angeles TORONTO Montreal



## LETTER TO THE EDITOR

*(Continued from page 8)*

on security. Fifty years ago it was AMBITION. Then a boy was taught that he might some day be President and take care of the Government. Today he is taught that the Government will take care of him. I don't believe that Security goes hand in hand with developing new ideas.

Suppose that a man has acquired an idea, a capacity for hard work, and is a "bear for punishment." What does he do next? Of course, the farther he can explore his idea before asking for help, the better for him. Naturally half-baked ideas are worth less than matured ones. (Here is where the basement lab comes in handy). But at some stage in the development the budding entrepreneur will have to get the co-operation of others. This co-operation will very likely be capital to carry development farther or even to manufacture the final article or carry out the process.

Today he can apply to the government for help in doing further research on his idea, if needed. Or he can take it to an established laboratory and the lab in turn can get government funds for development. Such lab may be a part of a university, a research institution, or a commercial laboratory.

If the idea pertains to some already established business or industry it can be sold or leased to someone who can make immediate use of it, if it is sufficiently developed, or who will provide further funds for development. Every chemist who expects to do any original work must become familiar with patent procedure and precedent. He should be almost as learned in this respect as his patent attorney. The U. S. Patent System in the past has been productive of excellent results, perhaps the best in the world. Of late years in some quarters there seems to be a desire to chop the tree down to get at a few small branches that need pruning. Unfortunately this has been especially noticeable in the Supreme Court, on whom in the past we have depended to establish precedents in

patent law. Every chemist, whatever his job, is vitally interested in the safety and perfection of our patent system. When these are threatened, he should let his congressman know where he stands.

To conclude, the world is looking for real ideas. The supply is much less than the demand. I believe that any chemist who sets his mind to it, stays with it through thick and thin, can develop his own ideas to the point where he receives a real reward from them.

Very sincerely yours,

IRVING F. LAUCKS.

## The Hancock Report . . .

*(Continued from page 19)*

The A. C. S. could approach the problem—the root of which I believe to be lack of sound education — by sponsoring a series of lecturers to tour the local sections and universities, giving educational lectures on such subjects as would make it possible for a chemist to be of more value and able to earn the higher salaries.

Suggested subjects would be contractual relations between chemists and employers; cost and value of research; organizational methods of bridging the gap between research, development and actual production and sales; the value of control work—too many chemists are taught to despise this field of work, without which no research work is of value; basic reviews of economic laws; opportunities for educated chemists in other professions. This latter offers a buffer against overproduction and shortages.

A magazine devoted to this type of subject would be well worth while.

The incorporation of a section of the local and national section for professional status discussions, for market research and for general education is desirable.

A careful analysis shows it is the higher caliber scientific men who are most aware of their narrow education. Unless you have hired chemists it is unbelievable how narrow their education really is as a group and how it restricts their growth.



# *Student Activities . . .*

## **Iota Sigma Pi**

The annual initiation banquet of the Oxygen Chapter of Iota Sigma Pi was held at the Seattle Tennis Club on Thursday, February 6. After a very delicious dinner, the initiates were required to recite or read parts of their autobiographies, written in chemical terms. They also presented a short skit, entitled "A Day in the Lives of Two Bacteriologists, Two Chemists, and a Premed." Those initiated were Mary Eccles, Althea Glines, Eloise Giblett, Frances Greif, Carol Johnson, Clarise Lere, Myrtle Logue, and Dorothy Munce.

After the initiation the new members were welcomed by the actives and congratulated by the faculty wives—Mrs. H. K. Benson, Mrs. E. C. Lingafelter, Mrs. R. W. Moulton, and Mrs. H. V. Tartar. Also present was Dr. Xalia Gailey, one of the charter members of the Oxygen Chapter.

## **Phi Lambda Upsilon**

The University of Washington chapter of Phi Lambda Upsilon is happy to announce the inauguration of a new program which is entertaining as well as educational. A free industrial movie will be shown every other week, the first being shown at noon on February 26, in room 131, Bagley Hall.

This chapter would like to introduce the new secretary, Leroy A. Wilcox, who has filled the position recently vacated by Spence Greaves.

During the past few weeks considerable work has been done on bringing the alumni files up to date. It has been urgently requested that all former members of this chapter send information, stating their present place of residence and employment to Phi Lambda Upsilon, c/o Chemistry Department, University of Washington.

## **1947 Regional Meeting**

The Washington-Idaho Border Section will be host at the Northwest Regional Meeting this year. This gathering of Northwest chemists will be in Moscow, Idaho, and Pullman, Washington, May 2 and 3.

It is a year and a half since the meeting in Seattle. Accordingly, it is high time to renew acquaintances with our friends from Oregon, Eastern Washington, and Idaho. It's time to whip that bit of research into shape for presentation. Moreover, May is the ideal time for that necessary two-day respite from the steady grind. Have you seen the Palouse country this spring? Have you *ever* seen the Palouse country? It is worth the drive across the state.

The tentative program includes Divisional meetings Friday afternoon, dinner, and an address by an invited speaker Friday evening—all at Moscow. On Saturday the scene shifts nine miles away to Pullman with symposia and Divisional meetings in the morning and afternoon.

Let's support this meeting the way the neighbor sections supported ours in 1945. At that time 24 members came from the Washington-Idaho Border Section and six papers were submitted by their small group.

Titles of papers should be submitted to V. Sivertz, University of Washington, by March 15, if possible, to appear on the program. Information on transportation, housing, and other details will be announced in the next issue of the PUGET SOUND CHEMIST.

Get that melting point now!

Plan on May 2 and 3 in Moscow and Pullman!

---

**EMPLOYMENT**—Chemist, 25 years broad industrial experience, seeks Northwest connection. Experience and qualifications listed with J. T. Stephan, Chairman, Employment Committee. James Greek, 21736 Snow, Dearborn, Michigan. Would come West for interview if prospects favorable.