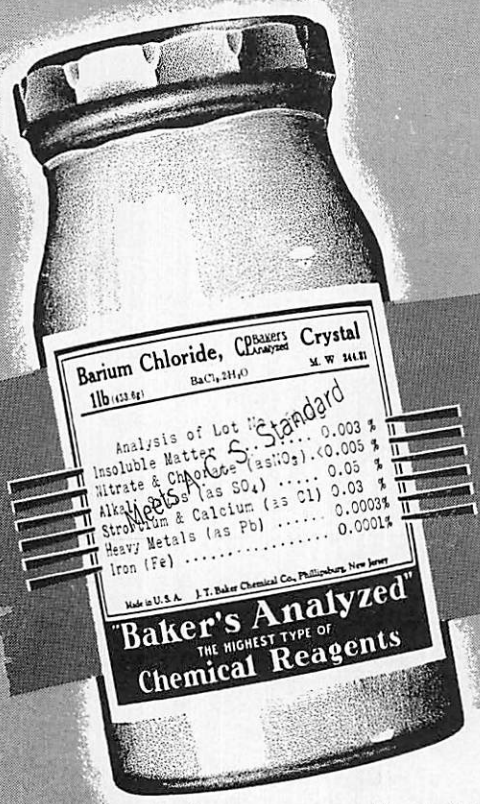
The PUGET SOUND CHEMIST

BULLETIN OF THE PUGET SOUND SECTION OF THE AMERICAN CHEMICAL SOCIETY



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December Meeting

PUGET SOUND SECTION OF THE AMERICAN CHEMICAL SOCIETY

Tuesday, December 19, 1948

7:45 P. M.

UNIVERSITY OF WASHINGTON

BAGLEY HALL

ROOM 140

★

SPEAKER:
DR. W. C. FERNELIUS
Head, Department of Chemistry,
Pennsylvania State College

SUBJECT:
"THE STRUCTURE OF COORDINATION COMPOUNDS"

★

Executive Committee Dinner, Meany Hotel, 6 p. m.

Refreshments will be served following the address

November Speaker

LINUS CARL PAULING

BIOGRAPHY

Linus Carl Pauling, professor of chemistry, and chairman of the Division of Chemistry and Chemical Engineering at California Institute of Technology, Pasadena, and director of Gates and Crelin Laboratories of Chemistry, was born February 28, 1901, in Portland, Ore. He graduated from Oregon State College in 1922, took a Ph. D. from California Institute of Technology in 1925, and studied in Munich, Copenhagen and Zurich in 1926 and 1927 as a fellow of the Guggenheim Memorial Foundation. While a student at Oregon he was an assistant in quantitative analysis, and was a graduate assistant and later a teaching fellow at California Institute of Technology. He became assistant professor of chemistry there in 1927, associate professor in 1929, and professor in 1931.

He joined A.C.S. in 1920, and has served as councilor-at-large (1944-46), and was a councilor for the Southern California Section in 1947. He has been a member of the editorial board of the Monograph Series, is an associate editor of J.A.C.S., the Journal of Chemical Physics, and Chemical Reviews. He was given the Langmuir Award in 1931, the Nichols Medal in 1941, and the Willard Gibbs Medal in 1946.

He gave the Julius Steiglitz Memorial Address (Chicago Section, A.C.S.) in 1943, and delivered the first Harrison Howe Lecture (Rochester Section, A.C.S.) in 1946. He was George Eastman Professor at Oxford University from January to June, 1948. He has been given several honorary doctor's degrees. He is at present president-elect of the American Chemical Society.

He has published about 160 papers in J.A.C.S. and other journals, and is the author of "Quantum Mechanics," "Line Spectra" and "Nature of the Chemical Bond."

His chief chemical interests are the chemical bond, crystal structure and molecular structure, immunochemistry and quantum mechanics. He is a member of the National Academy of Sciences, American Philosophical Society and A.A.A.S., and is an honorary fellow of the Chemical Society of London.

Dr. Pauling addressed the Puget Sound Section on November 4 on the subject, "The Structure of Antibodies and the Nature of Serological Reactions."

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JANUARY SPEAKER

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DR. HOBART H. WILLARD
Professor of Analytical Chemistry
UNIVERSITY OF MICHIGAN

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DATE OF MEETING
TO BE ANNOUNCED
IN OUR NEXT ISSUE

EDITOR'S RETORT

•

We were very interested in Walter Murphy's recent editorial in C. & E. N. entitled "Chemistry in the Northwest," occasioned by Mr. Murphy's recent visit to the Portland meeting. He lauds the progress being made chemically in this area, and the progress soon to be made industrially as a result. He then deeply regrets the fact, as do we all, that the great majority of the trained chemists and chemical engineers graduated from our Northwest institutions must hie themselves to other (and presumably less livable) parts of the country to find employment in their chosen professions. In conclusion it is stated that employment of chemists and chemical engineers may seem like "casting bread upon the waters" to many businessmen, but they will be sorry when they wither and die on the vine while those foresighted enough to advance technically will progress to unforeseen prosperity.

We heartily endorse Mr. Murphy's premise. The PUGET SOUND CHEMIST has harped on chemistry as one of the fundamental keys to Northwest progress, probably ad nauseam. We will never make the grade, though, by trying to convince hardheaded businessmen, whose closest acquaintance with chemistry lies in the digestive process, that they should start a chemists' employment drive in the hope of realizing some incomprehensible bonanza. These men are empiricists, and must be convinced of results in their own terms.

Work of the kind being performed by Dr. A. B. Anderson on pine extractives is the type of chemical investigation which will insure industrial progress along chemical lines in the Northwest. We hope there will be much more of the same. It will behoove the local Sections and the A.C.S. to see to it that such development work is brought before the industrial leaders of this area in such terms that they cannot help but see the point. There is much work for chemists to do. It remains for us as a society to show how important that work is.

SURVEY OF WESTERN CHEMICAL INDUSTRY

Chemical-wise the West is growing up. Nearly 500 different types of prime chemicals are now being manufactured in the West by 245 firms operating some 300 producing plants. And what's more — contrary to general opinion — almost 70 percent of these prime chemical producers has headquarters in the 11 Western states.

This information has been brought out for the first time in a special survey and directory just issued by Pacific Process Industries. The survey was made by John R. Callaham, the publication's Western Editor in San Francisco, and friend and acquaintance of many a Northwesterner.

First of its kind for the West, the directory lists the specific chemical products and plant location of every known prime producer of chemicals in the West regardless of size. Some 500 firms were contacted personally to "smoke out" the 245 producers and their products. Deviating from most directories, it is strictly limited to actual producers in the area. Cooperation on the part of industry in supplying the information was extremely high — exactly 99.6 percent. The compiling and checking required almost a year.

Most of the West's prime chemical producers, according to Mr. Callaham, are located in the three Pacific Coast states, which have 71 percent of the manufacturing units The two largest production centers are the Los Angeles basin and the San Francisco Bay area. These centers are now running neck-and-neck in number of production workers employed. Other centers of production are the Tacoma-Seattle area; Portland-Vancouver on the Lower Columbia River; Henderson, Nev.; the Great Salt Lake Basin in Utah; the southern Idaho-Wyoming border area; Anaconda, Mont.; Denver, Colo.; Carlsbad, N. M., and the smelter areas of southern Arizona.

Largest tonnage production of any basic chemical made in the West is turned out in sulphuric acid operations: Last year 17 plants accounted for almost 750,000 tons or 7.1 percent of the nation's total. Six plants produced 159,500 tons of liquid chlorine or 11.0 percent of the United States total. These units are located in

(Con't on page 14)

EXTRACTIVES FROM PONDEROSA PINE

Extractives from Ponderosa Pine

Dr. Arthur B. Anderson, Director of Research and Development for the Oregon Lumber Company, addressed the Puget Sound Section on his work with the Western Pine Association Research Laboratories at the regular October meeting on October 19.

Dr. Anderson introduced his topic by relating how he was assigned the project of developing a knot sealer for knotty pine siding, which would eliminate the staining commonly encountered when paint is applied over knotty pine lumber. This was necessary in order that lower grade lumber could be used in the construction of housing at a time when clear high-grade lumber was extremely scarce. The problem was attacked from two aspects: Studies were initiated in the development of a sealer by empirical means, and at the same time, research on the nature of the extractives from pine knots were begun in the laboratory. In the course of time, sufficient knowledge was gained to permit the formulation of a satisfactory sealer, which, when applied over pine knots would permit the application of white paint to the lumber and prevent staining previously encountered.

In the meantime, a great deal of interest in the chemical nature of extractives from Ponderosa Pine was generated, and work on this aspect of the problem came to surpass the original project in importance. As a result of these studies, a system of seasoning lumber by acetone extraction was developed, which has been operated on a pilot plant scale at the Bend, Oregon, mill of the Oregon Lumber Company. Analysis of the extractives has demonstrated that they have potentially great economic value, particularly in view of the fact that the Southeastern sources for naval stores are rapidly becoming depleted. It is therefore entirely probable that a naval stores industry will develop in the Northwest over the next few years. Market surveys are even now being conducted on the possible economic value of the extractives already obtained and available in considerable quantity from the

(Con't on apge 16)

Washington-Idaho Border Section Has Interesting History

The section now known as the Washington-Idaho Border Section was originally organized as the Northern Intermountain Section of the American Chemical Society. The first charter was granted some time during the year 1912. In connection with the naming of the Section, an exchange of letters with Dr. Charles L. Parsons proved to be somewhat interesting. Some of his correspondence occurred as early as 1910, and in it Dr. Parsons emphasized the fact that a section name should indicate clearly the geographical location. In a letter not available, it appears that the name Inland Empire Section had been suggested, to which Dr. Parsons objected because he found that members of his committee associated the name with other locations. For example, a man from Kansas claimed that it was the Inland Empire; another claimed that speeches had been made in the Senate of the United States in which Oklahoma was called the Inland Empire. At another point in Dr. Parsons' correspondence, the following appears: "I do not wish you to think for a moment that I have any objection to the title you mention except that it might not carry meaning to those at a distance. You Westerners all think your locality is the Garden of Eden, but if you designated it under that name, those living 500 miles off might think you were appropriating their title." The final decision, however, for the name was as indicated above and under this name the Section existed until the middle twenties.

During the early years of the 1920's, the membership in this area was barely sufficient to permit retention of the charter and finally about 1926 the charter was lost. It was, however, only a temporary set-back because the membership bestirred itself and within a period of a couple of years the charter was reinstated, this time, however, under the name of the Washington-Idaho Border Section. Under this name the Section has had continuous existence to the present.—J. L. CULBERTSON, *Chairman, Dept. Chem. & Ch. En., W.S.C.*

EWELL APPOINTED BY STANFORD

The Stanford Research Institute has announced the appointment of Raymond H. Ewell, known to many members of the Puget Sound Section, as Chairman of the Department of Chemistry and Chemical Engineering. Dr. Ewell will have charge of research projects in all fields of chemistry and chemical engineering and also in related fields such as metallurgy and ceramics.

Dr. Ewell has had a broad experience in chemical industry, in government research and as a university professor, and he is widely known in the chemical profession. He comes to the Institute from the Shell Chemical Corporation of San Francisco.

Dr. Ewell received his B.S. degree from the University of Toledo in 1928 and completed his M.S. degree at Purdue University in 1930. From 1930 to 1935 he was a research chemist in the Clay and Silicate Products Division of the National Bureau of Standards in Washington, D. C. In 1935 he returned to graduate school at Princeton University where he received the Ph. D. degree in 1937.

In September, 1937, Dr. Ewell returned to Purdue University as a member of the faculty, where he taught physical chemistry, thermodynamics, chemical kinetics, molecular structure and colloids. In December, 1941, he was called to Washington to become connected with the National Defense Research Committee as senior technical aide in the Chemical Engineering Division. In his N.D.R.C. post Dr. Ewell played a key role in the development of incendiary bombs and flame throwers used in the war. In addition to the development phase of this work, he was closely associated with the planning and analysis of the incendiary bomb attacks on Japan. He received the highest civilian award, the Medal for Merit, for his war work.

Following the conclusion of the war, Dr. Ewell joined the Shell Chemical Corporation in San Francisco, where he has been a senior technologist in the Economic Research and Development Departments.

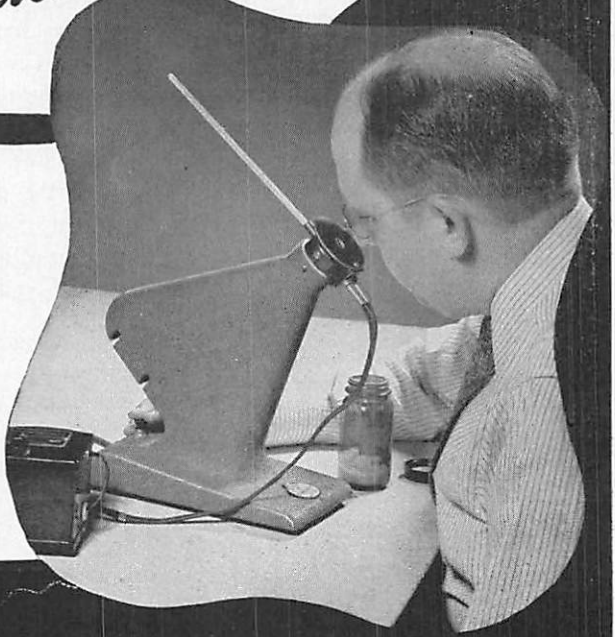
Dr. Ewell's researches and numerous publications have been in the fields of chemistry of silicates, viscosity of liquids, applied chemical thermodynamics, and azeotropic distillation. He is co-inventor of the Lecky-Ewell packing for fractionating columns. Dr. Ewell is a member of the American Chemical Society, Society of Rheology (vice president, 1938-40), Sigma Xi, Phi Lambda Upsilon, Sigma Pi Sigma, and the Western Chemical Market Research Group. As an interesting hobby Dr. Ewell is a gourmet and wine connoisseur of some note; he is author of the well-known guide-book, "Dining Out in San Francisco and the Bay Area," and is a member of the exclusive Wine and Food Society of San Francisco.

TEN COMMANDMENTS FOR TECHNICAL MEN—

(Contributed by Paul P. Entrikin, chemist, Stanolind Oil Co. of Louisiana, Baton Rouge.)

1. Thou shalt not follow in the dust of progressing operations, but shalt run ahead with a lantern in thy hand to reveal the way.
2. Thou shalt seek and respect the opinions of operators, even unto the third helpers, for theirs is a wisdom unknown to technocrats.
3. Thou shalt determine what should be done and do it, without the necessity of others holding thy hand.
4. Thou shalt not be too dignified to shoot the bull; neither shalt thou shoot it entirely, for so is its productivity destroyed.
5. Thou shalt not forsake the ways of thy technical training, so that to thee CH_2O cease to be formaldehyde and become sea water.
6. Thou shalt not take thy grievances and ideas first to the top, lest the bottom remove its support from under thee, saying "We knew nothing of it."
7. Thou shalt remember that refining processes change not because of reasoning and meditation, however profound, but only by the turning of valves.
8. Thou shalt study the conclusions from all sides through many viewpoints, for verily, undiscovered claws may rip thy rear.
9. Thou shalt strive to make thy judgment as good as any man's by experimenting, observing, recording, calculating, studying, and thinking; and having done so,
10. Thou shalt use it.—*The Accelerator.*

FISHER *Refractometer* with Heater Head



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The refractive index is read directly on the Refractometer's illuminated, transparent scale. Gradual approach to melting point in the Heater Head is controlled by the transformer designed for 110 volt, 60 cycle A.C. only. The thermometer provided has a range of 20 to 300° C.

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(Con't from page 6)

Denver, Tacoma, Portland, Henderson and the San Francisco Bay area.

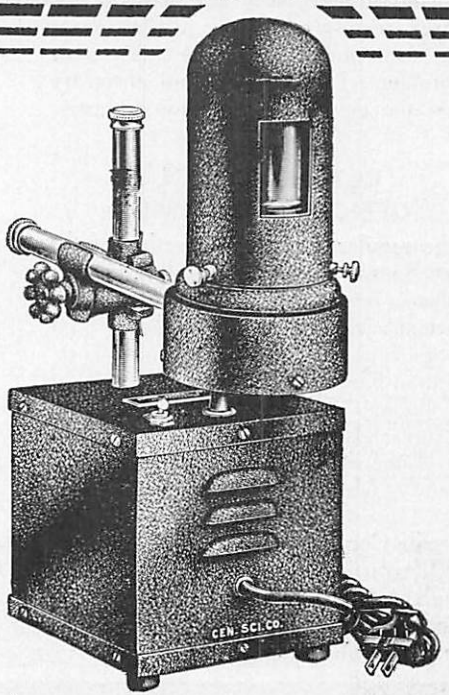
Unusual chemicals made in the West include algins from sea weeds, montan wax from lignite coals, saponin from the desert's yucca, magnesium compounds from sea water, pharmaceuticals from beet sugar refinery wastes, alcohol from orange molasses and from sulphite pulp waste liquors, borax and alkalies from saline lakes, fertilizers from serpentine rock, varnish constituents from fossil resins, citrates from lemon wastes, medicinals from human blood and fish scraps, iodides from oil well brines, praseodymium compounds from rare ores, products from cows' milk and from bleached bones.

Other chemicals are made from petroleum gases, coking operations of steel mills, phosphate rock, salt, soap production, vegetable and animal oils, natural gases, silica sand and quicksilver.

Among all the chemical process industries the West now has 767 plants employing 21 or more persons with a total employment close to 135,000. This gives the West 9.1 percent of all the nation's plants in this category and 7.3 percent of the employment. For individual industries, the West has 17.1 percent of the nation's lime and cement plants, 16.9 percent of those producing explosives and fireworks and 15.2 percent of the petroleum refineries. At the low end of the list, it has 4.5 percent of the plastics-producing units, 3.7 percent of the leather tanneries, and 0.0 percent of the nation's factories making rayon and synthetic textile fibers.

Copies of the complete directory and survey can be obtained for $1.00 each from Chemical Engineering, McGraw-Hill Publishing Co., 68 Post St.. San Francisco.

SODIUM ARC LAMP



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The burner unit is enclosed in an unsilvered vacuum flask, the purpose of which is to keep the sodium vapor at its correct temperature and operating pressure. In use, electric heaters vaporize the sodium, and the arc strikes automatically.

★

The lamp is enclosed in a plastics shield and the lamp housing is supported and adjusted to position by a right-angle clamp on the vertical rod of the transformer.
A six-foot flexible cord with connecting plug and push-through switch is included.

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The power requirement is 75 watts.
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EXTRACTIVES

(Con't from page 7)

extraction of pine stump wood.

The outstanding point of interest in this project is the manner in which a search for a means of painting low-grade pine lumber may lead to an entirely new industry for this area, merely as a result of a chemical rather than purely pragmatic analysis of the problem. In this way does chemistry further the development of our economy.

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LATE BULLETIN
OFFICERS FOR 1949

At the regular November meeting of the Puget Sound Section, the following slate of Officers for 1949 was elected:

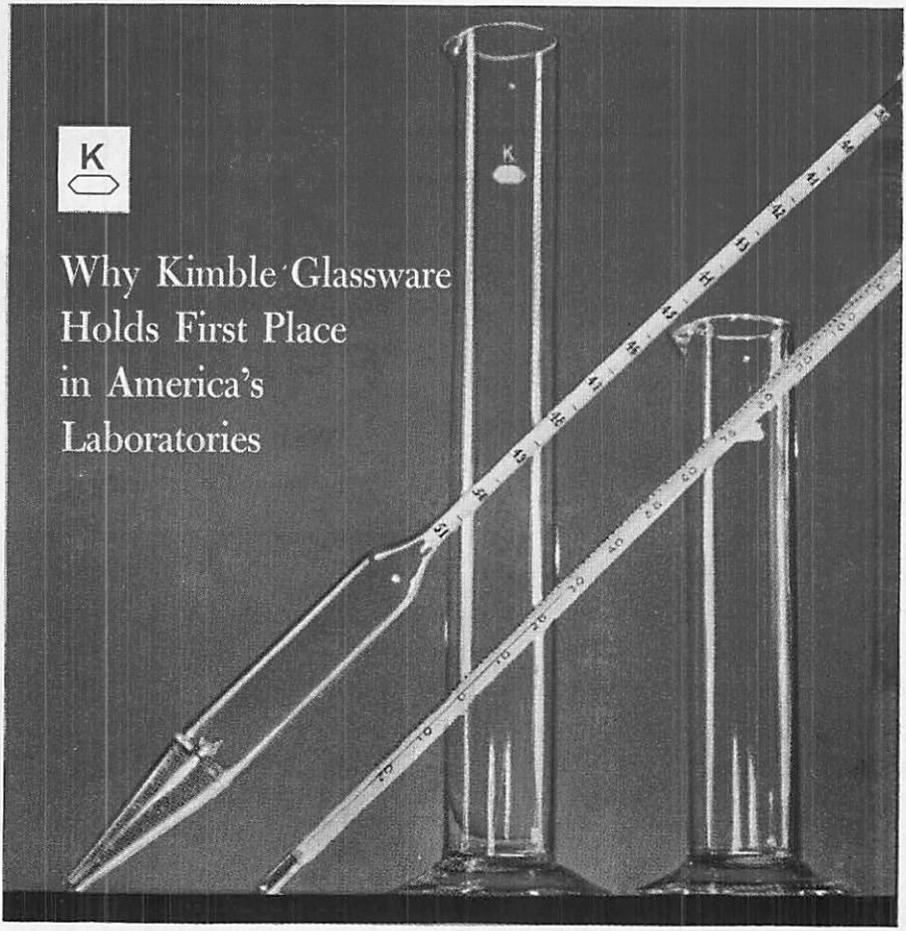
Chairman: Mr. L. D. Berger, Jr.
Carbide and Carbon Chemicals Corp.
Chairman-Elect: Dr. R. Sprenger
College of Puget Sound
Treasurer: Dr. A. E. Markham
University of Washington
Secretary: Mr. Collis C. Bryan
Monsanto Chemical Company
Alternate Councilor: Dr. Rex Robinson
University of Washington

A full report on our new officers will be carried in the December Issue of the Puget Sound Chemist.

OUR COVER PAGE

"SKIERS" "PARADISE"

Courtesy of Northwestern Mutual Fire Association



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NEW AWARDS

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Administrative responsibility for two new awards was accepted by the A.C.S. in 1948, bringing to 10 the number under the Society's jurisdiction. Nominations for eight of these now are being solicited with a deadline of January 1, 1949, for receipt in Washington of the necessary documents. They are to recognize distinguished services to chemistry and outstanding research in pure chemistry, the chemistry of milk, biological chemistry, analytical chemistry, essential oils and related chemicals, enzyme chemistry, and petroleum chemistry and also distinguished service to chemistry by a woman chemist. Any member who knows of a chemist worthy of recognition in any of these fields should see that the proper nomination is made. Particulars concerning requirements for each award are contained in Bulletin 7, "Awards Administered by the American Chemical Society," just released. The Secretary of each section has a copy which can be consulted. Also, a summary is given in C&EN, September 27, page 2867.

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