The PUGET SOUND CHEMIST

Bulletin of the PUGET SOUND SECTION
of the AMERICAN CHEMICAL SOCIETY

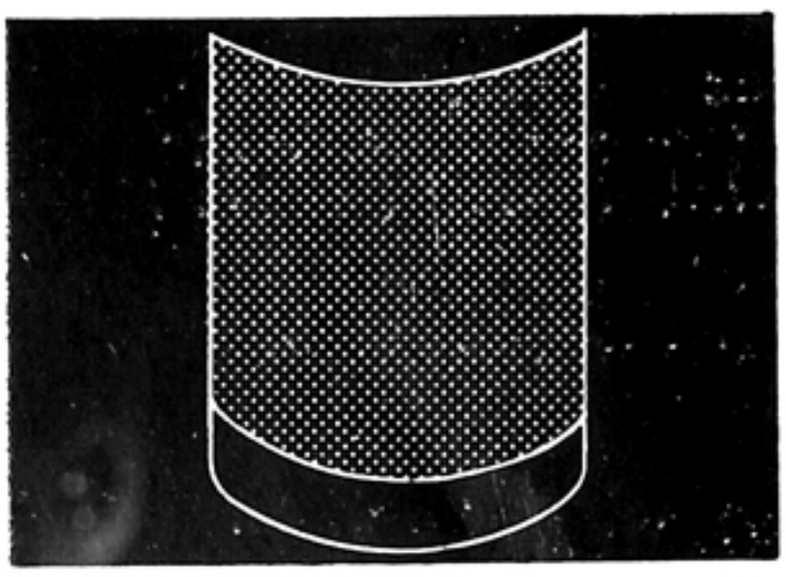
IN THIS ISSUE

JANUARY, 1951

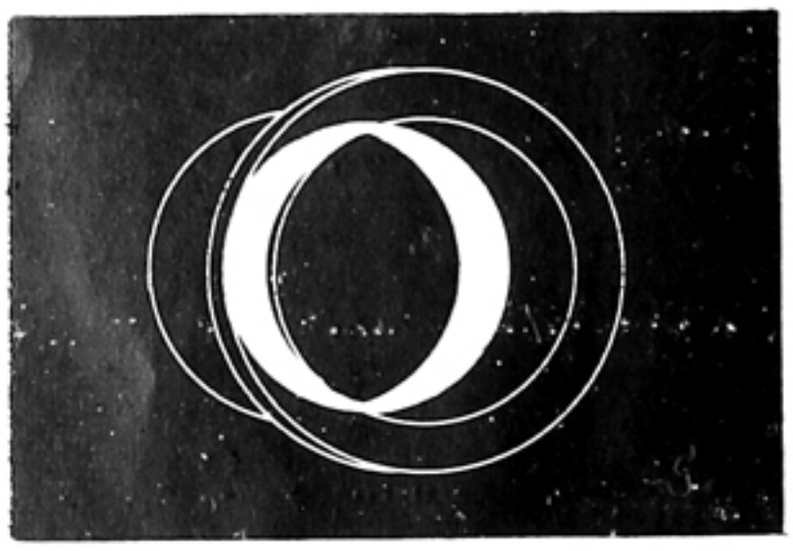
Announcing...

a new POLYETHYLENE package for 'Baker Analyzed' HYDROFLUORIC ACID with these 6 distinctive advantages

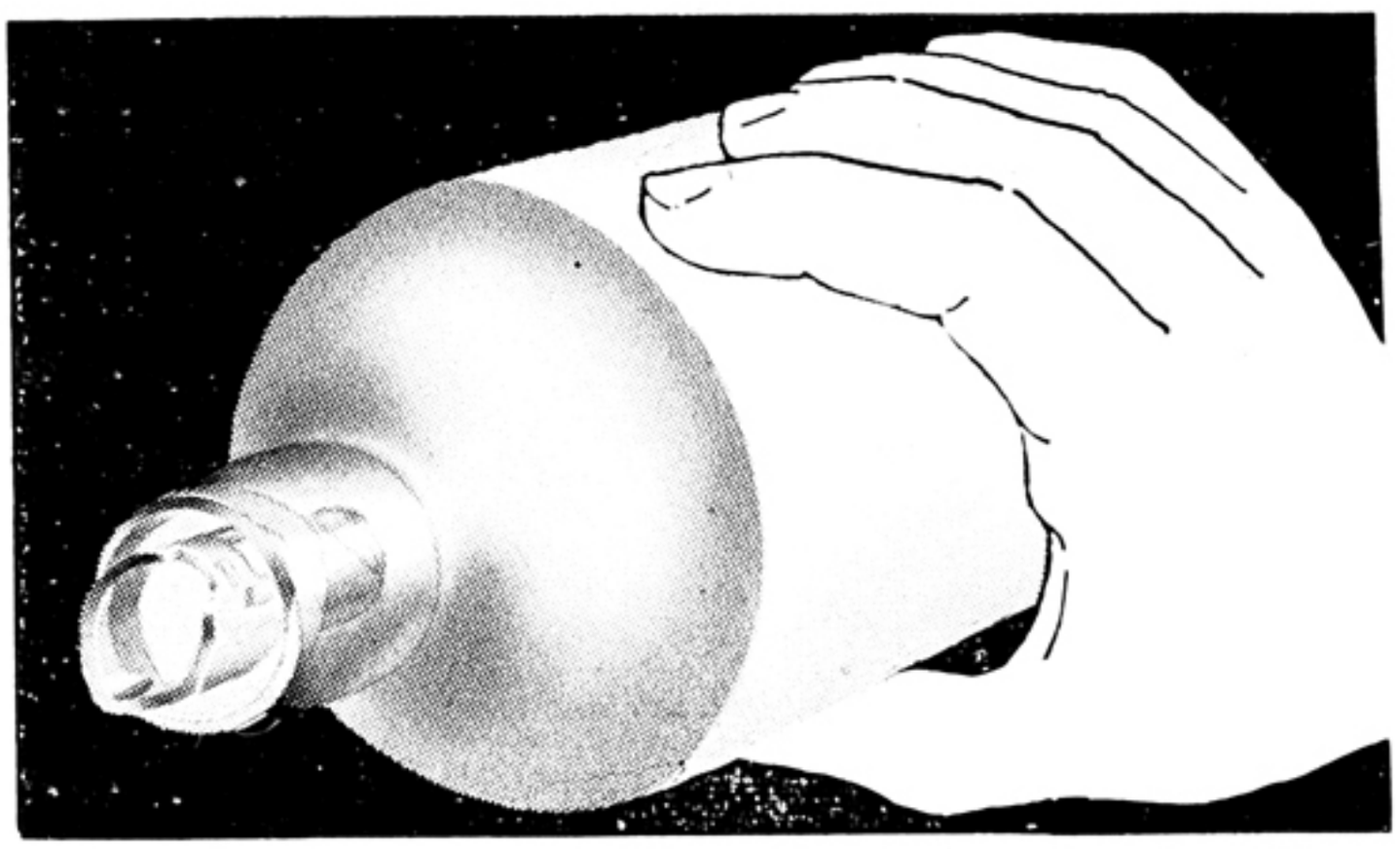
Increased safety with this large size easy-to-remove screw cap.



Increased protection against contamination—bottle and pouring tube (both polyethylene) are inert to Baker Reagent 49-52% Hydrofluoric Acid.



No diaphragm to puncture. Bottle rim is fitted to groove in cap for tight seal.



The development of this polyethylene bottle with its built-in drain-back spout and 6 distinctive features is just another example of the care Baker takes to safeguard the quality of its Laboratory Chemicals.

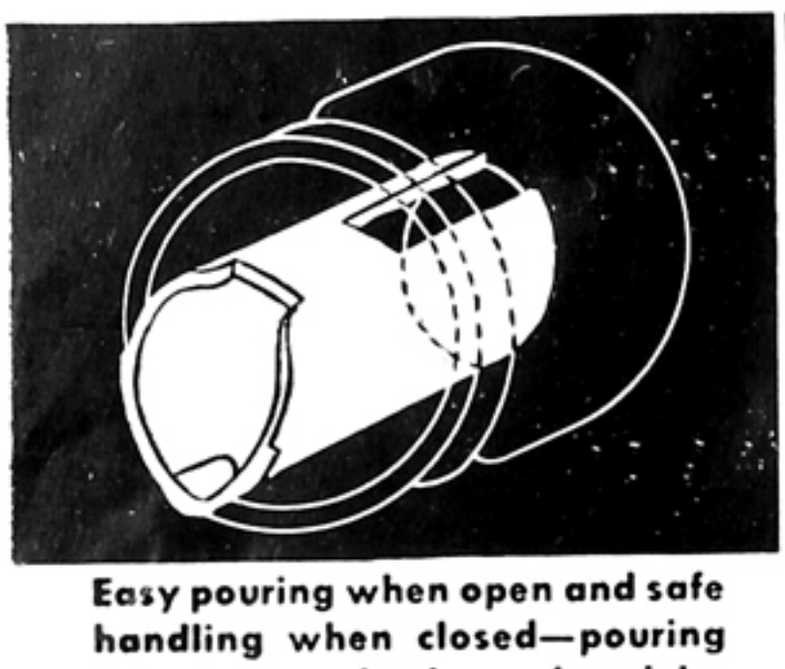
Remember, this new bottle makes pouring easy. You can get controlled flow without the danger of acid running down the outside of the bottle.

When you next order Hydrofluoric Acid specify Baker Analyzed Hydrofluoric Acid in the *new polyethylene package.* If your favorite laboratory supply house does not have the new Hydrofluoric Acid package in stock he will be glad to get it for you.

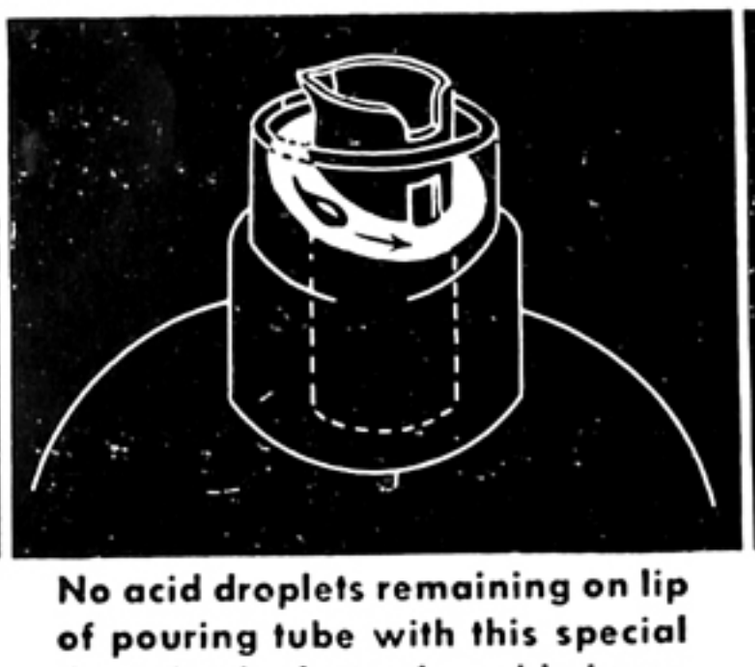
J. T. Baker Chemical Co., *Executive Offices and Plant:* Phillipsburg, New Jersey

Baker Chemicals

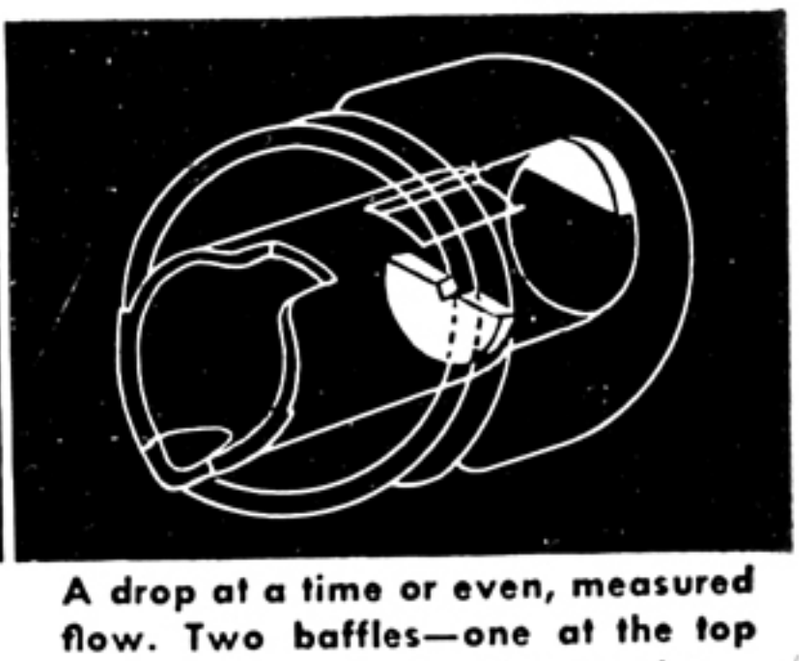
REAGENT • FINE • INDUSTRIAL



Easy pouring when open and safe handling when closed—pouring tube is completely enclosed by cap and outer sleeve of bottle rim.



No acid droplets remaining on lip of pouring tube with this special drain-back channel—added protection for the user.



A drop at a time or even, measured flow. Two baffles—one at the top controls flow of air while pouring—other, at bottom, controls liquid flow.

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The PUGET SOUND CHEMIST

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

Advertising Manager—Charles V. Smith, Northwest Laboratories, Second Avenue and James Street, Seattle; MAin 0680.

Associate Editors—Ted Niedo, WEst 6519; Ben Baldwin, FIllmore 1430.

Photographer—G. Otto Orth, Jr., VErmont 6961.

News Contributors — Dr. Leo Friedman, Corvallis; Robert B. Dean, Eugene; Robert C. Olsen, Pacific Lutheran College; C. E. Higer, Everett; A. W. Stout, Portland; Bede Ernsdorff, Olympia, and John Ardussi, Seattle.

There Will Be No January Meeting

HEAR

Dr. Robert A. Millikan

Discuss

"THE ROAD TO PEACE"

Health Sciences Auditorium

University of Washington Campus

8:00 P. M., JANUARY 18

CHAIRMAN'S MESSAGE

Your chairman wishes, as his first official act, to state the appreciation which he knows is felt by all of the members of the Section for the fine work which was done during the past year by his predecessor, Collis Bryan. We thank you and commend you, Collis!

The year 1951 brings many problems, challenges, and opportunities both for the Puget Sound Section and the entire American Chemical Society. With your help, we can do great things. Without the **active** support and cooperation of the entire membership, we can do comparatively little. It is appropriate at this time to remind you of some of the major events on our calendar for 1951.

This is the 75th Anniversary of the founding of the American Chemical Society. The Jubilee Meeting in New York City in September will be a meeting particularly worth attending. Plan your year now to include that meeting. The American Chemical Society has set a goal of 75,000 members for this our 75th year. You can help by acquainting your non-member colleagues of the advantages of membership in the Society, as well as their responsibility as members of the profession.

The Pacific Northwest Regional Meeting will be held in Seattle again this year, probably in June. We shall need your help in organizing and running the meeting, in contributing papers for the program, and in your attendance at the various sessions.

We shall need your help to make our High-School Students Day a success.

Please, if you can possibly spare a little of your time and energy to the work of the Section, let the chairman know. Reach for that phone or pen right now and experience the pleasure of contributing to the program of our Society.

—E. C. Lingafelter.

◆ ◆

God grant me the courage to change the things I can change, the serenity to accept those I cannot change, and the wisdom to know the difference — Deco Trefoil.

JANUARY SPEAKER

DR. ROBERT A. MILLIKAN

Dr. Robert A. Millikan, Emeritus Professor of Physics and Vice-Chairman of the Board of Trustees of the California Institute of Technology, will discuss **"The Road to Peace"** in the auditorium of the Health Sciences Building, University of Washington Campus, at 8 p. m. January 18, under the auspices of the U. of W. Office of Lectures and Concerts. Because of this meeting there will be no meeting of the Puget Sound Section.

Dr. Millikan is recognized internationally as one of the greatest of phyysicists, his determination of the charge of an electron being one of his classic research experiments. Other fields in which Nobel-Prize Winner Millikan has made very important contributions include studies of polarization of light from incandescent surfaces, variations of dielectric constant with frequency, absorption of X-rays, the pulling of electrons from metals by electric fields, and cosmic rays. He has been the recipient of scores of prizes, honors, and international awards.

As is true of all great Scientists, Dr. Millikan is not a narrow specialist, but has also been deeply concerned with subjects such as intellectual freedom and the impact of science on society.

◆ ◆

COVER PHOTO

Courtesy of

MARSHALL RAMSTAD

Tacoma Chamber of Commerce

◆ ◆

THANK YOU

The editorial staff acknowledges the assistance of Charles V. Smith, R. B. Dean, E. C. Lingafelter, A. G. Anderson, Rev. Bede Ernsdorff, A. E. Markham, E. B. Denton, F. B. Sanford and R. W. Moulton, whose aid was invaluable in the preparation of this issue.

OREGON NEWS

The University of Oregon is making plans for its Diamond Jubilee celebration to be held beginning in October of 1951 — just 75 years since the University opened its doors. If all goes well the new science building will be completed in time for the celebration, and the University hopes to play host to several scientific societies as a part of the festivities. Construction on the new science building, located just behind the present chemistry department in McClure Hall, has now reached the roof level at one end. The building is almost one hundred yards long and will hold the departments of chemistry, phyysics and biology — departments which are now housed in two of the least modern buildings on the campus.

The city of Eugene has appointed a committee to investigate all phases of the possibility of adding fluoride ions to the city drinking water for the prevention of tooth decay of children growing up in the city. Eugene is believed to be the first city in this part of the country to consider seriously this preventative measure.

Stewart K. Burr is now employed by the Chemical Division of the Borden Company at their Springfield plant. He was employed by the State of Idaho highway department before serving with the U. S. Army Medical Corps during World War II. On his return to civilian life, Burr put in two years at the University of Oregon doing work in chemistry and geology.

—Robert B. Dean.

OLYMPIA NEWS

At the conclusion of a membership campaign a dozen students enrolled for the Chemical Chaper at St. Martin's College. Six of these men became Student Affiliates of the American Chemical Society as well. At a recent meeting of the Chapter lecture demonstrations by several student members proved to be instructive and entertaining. Dr. Frank Horan is the Faculty Advisor.

—Bede Ernsdorff.

SEATTLE NEWS

During the month of November, Maurice E. Stansby, Chemist in Charge, and George M. Pigott, Engineer, of the Seattle Technological Laboratory, Fish and Wildlife Service, visited California and Oregon fishing industries on an extensive field trip. The primary purpose of the trip was to collect fish meal and stickwater samples for analysis of various vitamins, particularly vitamin B-12. Samples were obtained from plants processing pilchard, tuna, and mackerel and from several commercial testing laboratories.

A complete series of pilchard samples were obtained throughout the process in several plants that utilize different drying methods. Vitamin analysis on these samples will indicate where the losses occur during the various stages of cooking, pressing, drying, and storing.

Visits were made to fresh fish and shellfish plants along the Oregon and Northern California coasts.

—F. Bruce Sanford.

◆ ◆

Oregon Section officers for 1951 are as follows: H. O. Ervin, Chairman; Max B. Williams, Vice-Chairman; Arthur H. Livermore, Secretary-Treasurer; Arthur F. Scott, Councilor; V. H. Cheldelin, Alternate Councilor. —A. W. Stout.

◆ ◆

At the December 12 meeting, the following AIChE officers were elected for 1951: Chairman, F. B. West; Vice-Chairman, W. S. Munro; Secretary-Treasurer, B. B. Butler; Executive Committee Member, Neil Robertson.

* * *

ELECTROCHEMICAL SOCIETY

At the recent meeting in Corvallis, Oregon, the following officers were elected for 1951: G. L. Putnam, Chairman; Glen Ware, Vice-Chairman; J. B. Heitman, Secretary-Treasurer.

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The average dentist in Washington reported income of $10,003 in 1949. (Survey of Current Business, January and July, 1950.)

INTRODUCING THE EDITOR

The editor acknowledges his debt and that of the **Puget Sound Section** to Charles V. Smith, who so ably managed and edited this publication during the past two years, and has left it an improved financial reserve. Mr. Smith, Chairman-Elect of the Section, has consented to continue with what is probably the most difficult duty of the editorial staff, the advertising end.

* * *

Even at this twilight hour, the editor has no desire to pontificate on the issues now upon us, be they chemical or otherwise.

There never lived a completely unbiased man. The editor might as well confess that since the days of Hiroshima and Nagasaki he has developed an increasing bias in favor of the Sermon on the Mount (Matthew 5). There are other biases upon which he welcomes both praise and criticism.

What, then, should be the function of the **Puget Sound Chemist**? Should it not be a bond uniting the chemists of the area, by their interest in their profession and in each other? Should not one of its many functions be to give expression to the aspirations and desires and activities of the chemists of the Pacific Northwest? To do this, and in consideration of the Federal war effort, it may be observed that our new format makes possible more space for contributions from the membership.

Periodically we plan to propose a question on which comments from the membership are solicited. It will be started in the February issue. As the question for the February CHEMISTS COMMENTS column it has been suggested we discuss "How should the chemist or chemical engineer express his concern with the impact of his work on society?" (Deadline for February copy, January 20. Have **you** a suggestion for the March issue)?—**G. L. P.**

◆ ◆

The law of public necessity supersedes all other laws, civil liberties, and constitutions.

RESEARCH FOR DEFENSE

(Excerpts from a recent address by Dr. Walter J. Murphy.)

Unless the United States employs its technical manpower reserves wisely, and takes prompt action to end the shortage of scientists which has persisted since World War II, American leadership of the free world will fail, Dr. Walter J. Murphy, American Chemical Society editor, of Washington, D. C., declared in the principal address at the Fourth National Men of Science and Industry Dinner.

To protect the nation's "research and production army" of scientists and technologists from dangerous depletion while the military forces are built up to meet the needs of the present emergency, final responsibility for the drafting of technical personnel should be taken out of the hands of Selective Service officials and turned over to a strictly civilian agency, Dr. Murphy said.

"The Marshall Plan, ECA, and particularly Point Four are all essentials of a bold, dynamic attempt to raise the standard of living throughout the world, based on the reasonable supposition that Communism breeds and succeeds when men are hungry, inadequately housed, and without opportunities for satisfactory employment," he noted.

If America is to carry out the Point Four program, sharing some of its technical knowledge with less fortunate nations, it will have to "export" thousands of young scientists, technologists and technicians who will be willing to settle abroad to help other nations raise their standards of living, it was pointed out.

◆ ◆

CHEMICAL ENGINEER, in early thirties, desires to settle family in foreign region and participate in aid to undeveloped country. Liberal reward for information leading to his employment. Pulp and paper experience; World War veteran. Successful, personable, aggressive and conscientious, Box 11, care of Editor.

◆ ◆

Friendship is the only cement that will ever hold the world together.—Woodrow Wilson.

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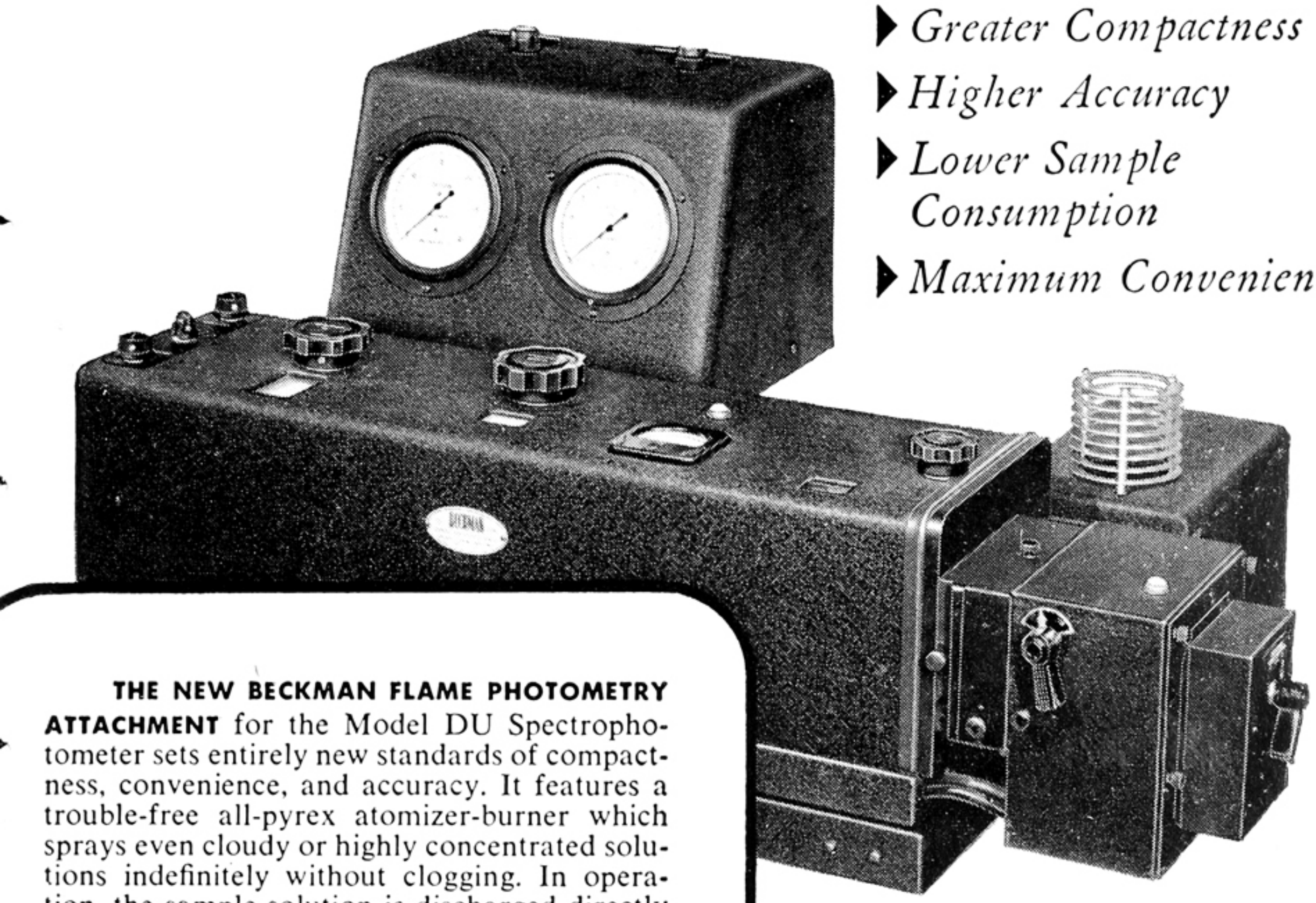

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Automatic Sample Positioner—protects the operator, is fast, convenient, and precise. The atomizer-burner, sample-positioning device, focusing mirror and adjustments are all unitized into a compact, cast-metal housing. All necessary regulators and gauges (except standard regulators on fuel and oxygen tanks) are conveniently mounted on a separate control panel.

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FEBRUARY SPEAKER

DR. H. K. BENSON

Biographical Sketch

The readers of the Puget Sound Chemist will be glad to learn that Dr. H. K. Benson has fully recovered from injuries sustained in an automobile accident August 18 resulting in a broken arm and fractured knee bone. Although no longer carrying on teaching work in the Department of Chemistry and Chemical Engineering of the University, he still maintains an office in Bagley Hall. He now has the rank of Professor Emeritus and Research Consultant in the department. He is chairman of the Pulp Mills Research Committee, which has charge of a research project carried on by the sulfite mills of Washington dealing with the utilization and disposal of sulfite waste liquor from sulfite pulping. He is also chairman of the State Chemurgic Committee, which conducts a chemurgic clinic each year on the industrial uses of farm crops. The next clinic will be held in March, 1951, in which the subject will be the Chemurgy of the Sea in relation to the fertility of land and plant and animal nutrition.

In his consulting work, he serves as Research Director for the Laucks Laboratories, Inc., of Seattle, and as a consultant for the Spencer Chemical Company of Kansas City, Missouri, one of the largest manufacturers of anhydrous ammonia in the United States. In this field, he was an early contributor to the literature of ammonium bisulfite pulping describing the work carried on by his students in 1934 and subsequently. At the present time two mills in the Pacific Northwest and two mills in Maine have converted from calcium base to ammonia base pulping with satisfactory results. With Dr. I. A. Pearl he developed the Pearl Benson method for the qualitative estimation of sulfite waste liquor in the water bodies into which it was discharged as an industrial waste.

Dr. Benson is a member of Coal Research, Incorporated, a non-profit organization with headquarters at Olympia, Washington. His interest in coal dates back to 1917 when he directed a Masters Research by L. L. Davis on the Low Temperature Distillation of Tono Coal and to his direction of a more recent study by L. A. Conradi, Research Assistant in the Engineering Experiment Station, published as Report No. 6, 1950, by the station under the title, "The Chemical Utilization of the Sub-Bitummous Coals of Washington."

Dr. Benson is also active in other organizations. He is a member of the State Board of Registration for Professional Engineers and of the National Council of State Boards of Engineering Examiners, where he serves on the Committee on Uniform Laws and Procedures. He has served on the Industrial Committee of the Seattle Chambtr of Commerce since its organization and is active on the Grounds Committee of the Ruth School for Girls, located at Lake Burien, Seattle.

He holds membership in the Technical Association of the Pulp and Paper Industry, the American Chemical Society, the American Institute of Chemical Engineers, the Board of Governors of the National Farm Chemurgic Council and

the Rainier Club of Seattle.

During World War I he was a captain in the Nitrate Division of Army Ordnance and is a member of the Army Reserves with the rank of major. In 1932 he was chairman of the Division of Chemistry and Chemical Technology of the National Research Council, Washington, D. C., and in 1938 was a delegate to the Tenth International Congress of Chemistry, Rome, Italy.

He has traveled in Central Europe including Finland and Scandinavia and in the Hawaiian Islands.

His publications include a text book on Industrial Chemistry (MacMillan) as well as bulletins and articles in the field of wood chemistry and two volumes on Potential Chemical Industries of Washington.

◆ ◆

DR. KENNETH A. KOBE

A. C. S. Tour Speaker

The many friends and former associates of Dr. Kenneth A. Kobe, Professor of Chemical Engineering at the University of Texas, will be delighted to know that he will soon address our section, probably on March 15, on SUBMERGED COMBUSTION.

Now 45 years old, Dr. Kobe was born and educated in Minnesota. He served as instructor and finally as Associate Professor at the University of Washington from 1931 to 1941. During much of this period he was in charge of all undergraduate thesis work, as well as many graduate projects. Possessed of a well-ordered, penetrating and versatile mind, a major portion of his thesises resulted in worthwhile contributions to the literature. Several score of publications resulted from the projects which he so ably guided, directed or advised, as the situation requiired.

Dr. Kobe has had extensive industrial experience, first with du Pont and later in consulting work. During World War II, he served as a major in the Chemical Warfare Services. Since 1947 he has been an editor of the Journal of Chemical Education.

Dr. Kobe is known by all of his associates as a lucid thinker, a square-shooter, an energetic worker, and a man with "the courage of his convictions." His topic on SUBMERGED COMBUSTION will be of particular interest to his former students, who remember that much of the pioneer work on the subject was done under his direction in **Old Bagley Hall.**

—G. L. Putnam.

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AIChE NEWS

At the December 12 meeting, Professor Wells Moulton of the University discussed the gasification of coal by the powdered coal, fluidized bed, fixed bed and underground combustion methods. Potential products include fuel gas, and synthesis gas for the production of hydrocarbons and ammonia. Present reserves of coal are about 20 to 50 times greater than those of oil and natural gas.

In a very informative talk, C. M. Sturkey of the Seattle Gas Company discussed "Progress of the Natural Gas Line From Alberta to the Pacific Northwest." The cost of such a 24-inch or 30-inch gas line will be of the order of 100 million dollars (about 100 thousand dollars per mile). Assuming steel priorities can be obtained and that unforseen politico-military developments do not occur, the gas line will greatly accelerate the industrialization of the Pacific Northwest.

* * *

PER CAPITA INCOME

(From Monthly Review, Federal Reserve Bank of San Francisco, September, 1950, page 109.)

Per capita incomes in dollars were as follows (average for **all** persons):

	1939	1949
United States	$539	$1,330
Washington	588	1,469

* * *

Amendment of the 75-cent-an-hour minimum wage for employment in the scientific, industrial, and laboratory instrument industry is being considered (CEN 28, 4326, December 11, 1950).

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.

INDUSTRIAL POSITION

WANTED—Chemical Engineer for work in Lima, Peru. Applicant should be young, and have had practical experience with construction and with machinery. In addition to design and supervision of construction, he will be expected to assist in the development of packaged frozen fish products. See R. W. Moulton.

REMEMBER

The Pacific Northwest

Regional Meeting

To Be Held in Seattle in Late

Spring or June

GET STARTED WITH

THOSE PAPERS

INDEX TO ADVERTISERS

These Friends Make the PUGET SOUND CHEMIST Possible
Please Patronize Them

This Will Be Your Only Notice For

February Meeting

Puget Sound Section

AMERICAN CHEMICAL SOCIETY

Time

Thursday, February 15, 8:00 p. m.

Place

Seattle, 131 Bagley Hall, University of Washington

Speaker

DR. H. K. BENSON, University of Washington Department of Chemistry and Chemical Engineering

Subject

CHEMICAL UTILIZATION OF COAL

Refreshments and Social Hour After Meeting

DECEMBER SPEAKERS' SUMMARY

The first speaker, Prof. William T. Simpson, indicated that the problem of the correlation of aromatic properties—i. e., thermoddynamic stability, bond lengths, and substitution as the preferred mode of reaction — with molecular structure has received considerable attention in recent years. The non-benzenoid hydrocarbons cyclooctatetraene and azulene have sharpened this interest and results in a search for a fundamental structural characteristic common to all aromatic compounds but not found in non-aromatic substances.

There have been several approaches to this, primarily from a quantum-mechanical aspect. Dr. Simpson explained the simplest, but perhaps one of the best, of the current theories. This theory reasons that ring structures which are planar, or essentially so, may be stabilized if there are six, ten, fourteen, etc., Π-electrons associated with the atoms in the ring. Dr. Simpson developed this concept by pointing out the analogy of such a planar "closed ring" stabilization with the spherical "closed shell" stabilization found in the atomic structures of the rare gases. This idea shows clearly why the conjugate unsaturation of the cyclooctatetraene structure which contains only eight Π-electrons would not be stabilized and thus would not be aromatic. The chemical properties and also the non-equality of the bond distances in cyclooctatetraene show it to be a highly unsaturated aliphatic molecule. He further pointed out that the "closed ring" theory is equally satisfactory for the five membered heterocyclic ring compounds which are aromatic.

The second speaker, Prof. A. G. Anderson, showed that the theory can be used to explain the aromatic stability of the blue hydrocarbon, azulene, and further that the theory also enables the prediction of the most probable structure for the transition state in electrophilic substitution and, as a consequence of this, the prediction of the position on the ring where substitution would occur. Dr. Anderson then discussed experiments on the electrophilic substitution of azulene in which Friedel-Crafts alkylation and acylation, nitration, chloromercuration and diazonium coupling had been successfully carried out, thus showing that azulene possessed the chemical properties of an aromatic molecule and that the substitution took place at the 1-position as predicted. In closing it was pointed out that there was much work yet to be done on the chemistry of azulene and also data on the bond lengths, which are not yet known, would be of interest and importance.

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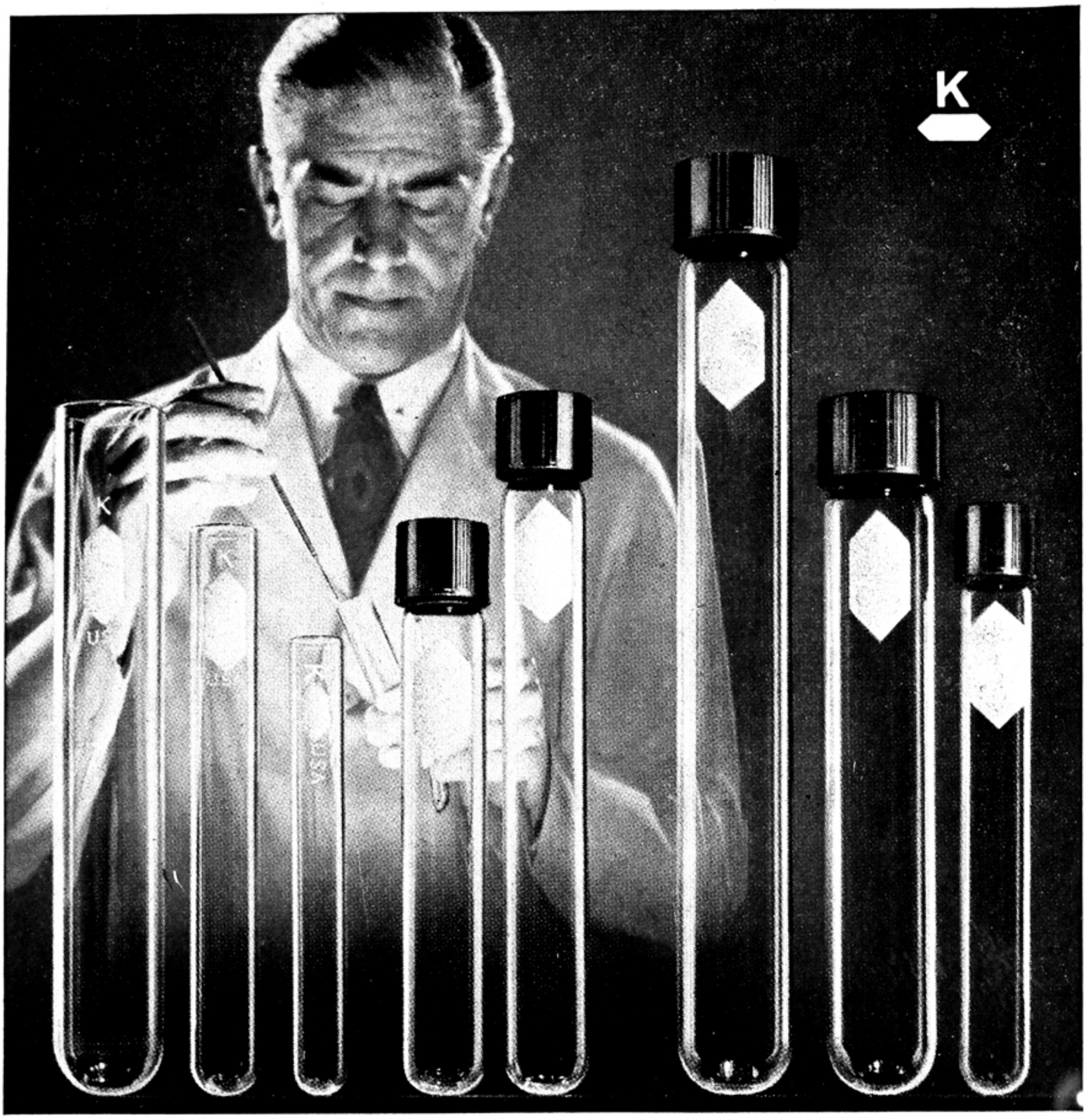
Faith in the idea of inevitable progress has been seriously shaken by World War II and the atom bomb. Well-informed persons no longer are convinced that science can solve all problems.—Professor A. C. Keller.



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You'll find, too, that Kimble Culture Tubes are the lowest-priced borosilicate tubes on the market. Your laboratory supply dealer will be glad to give you complete information about prices, types and sizes.

KIMBLE GLASS TOLEDO 1, OHIO

Division of Owens-Illinois Glass Company

CHEMICAL PROGRESS

Gallium, the silvery white metal that melts at ordinary summer temperatures, is looking for uses.

●

Milk is expected to be the next product to go to market as a frozen concentrate, as orange juice does now.

●

Corrosive liquids are now safely and economically packed in tin cans lined with plastic polyethylene bags.

●

A new kind of printing ink for ultra fast presses requires no heat but sets instantly when contact with the paper disturbs the balance in the mixture of solvents that keeps its resin vehicle liquid.

●

Pyrex glass with an extremely thin surface coating of electrically conducting metallic oxide is the heating unit in the latest radiant electric heater; and it is expected to have many other uses besides.

●

A revolutionary new process for reproducing documents and drawing employs electrical charges and a dry powder instead of the usual photosensitive coating and solutions; it is expected to compete seriously with blueprinting and other photocopying processes both in speed and in cheapness.

—From **The Chemical Digest**
of Foster D. Snell, Inc.

◆ ◆

CONTAMINANTS

There was a young lady of Twickenhem,
Of sausages never got sick of 'em.
She knelt on the sod
And prayed to her God
To lengthen and strengthen and thicken 'em.

—(From **Peter Pauper's Limerick Book,** as reprinted by the versatile Dr. Joel Hildebrand in the Chicago Section **Chemical Bulletin.**)

The recession is a period in which you tighten your belt. In a depression you have no belt to tighten, and when you have no pants to hold up, it's a panic.—Deco Trefoil.

◆ ◆

Will Rogers, who was proud of having American Indians for ancestors, cracked one of his best jokes at the expense of the Daughters of the American Revolution.

"I can't claim my folks was Mayflower descendents," he told the ladies, "but I recollect they was there to meet the boat."

* * *

Calvin Coolidge, awakening from a nap in the middle of a presidential executive day, opened his eyes, grinned, and asked a friend, "Is the country still here?"

* * *

A politician said to Horace Greeley one day:

"I am a self-made man."

"That, sir," replied Greeley, "relieves the Almighty of a terrible responsibility."

* * *

A friend once wrote Mark Twain a letter saying that he was in very bad health, concluding: "Is there anything worse than having toothache and earache at the same time?"

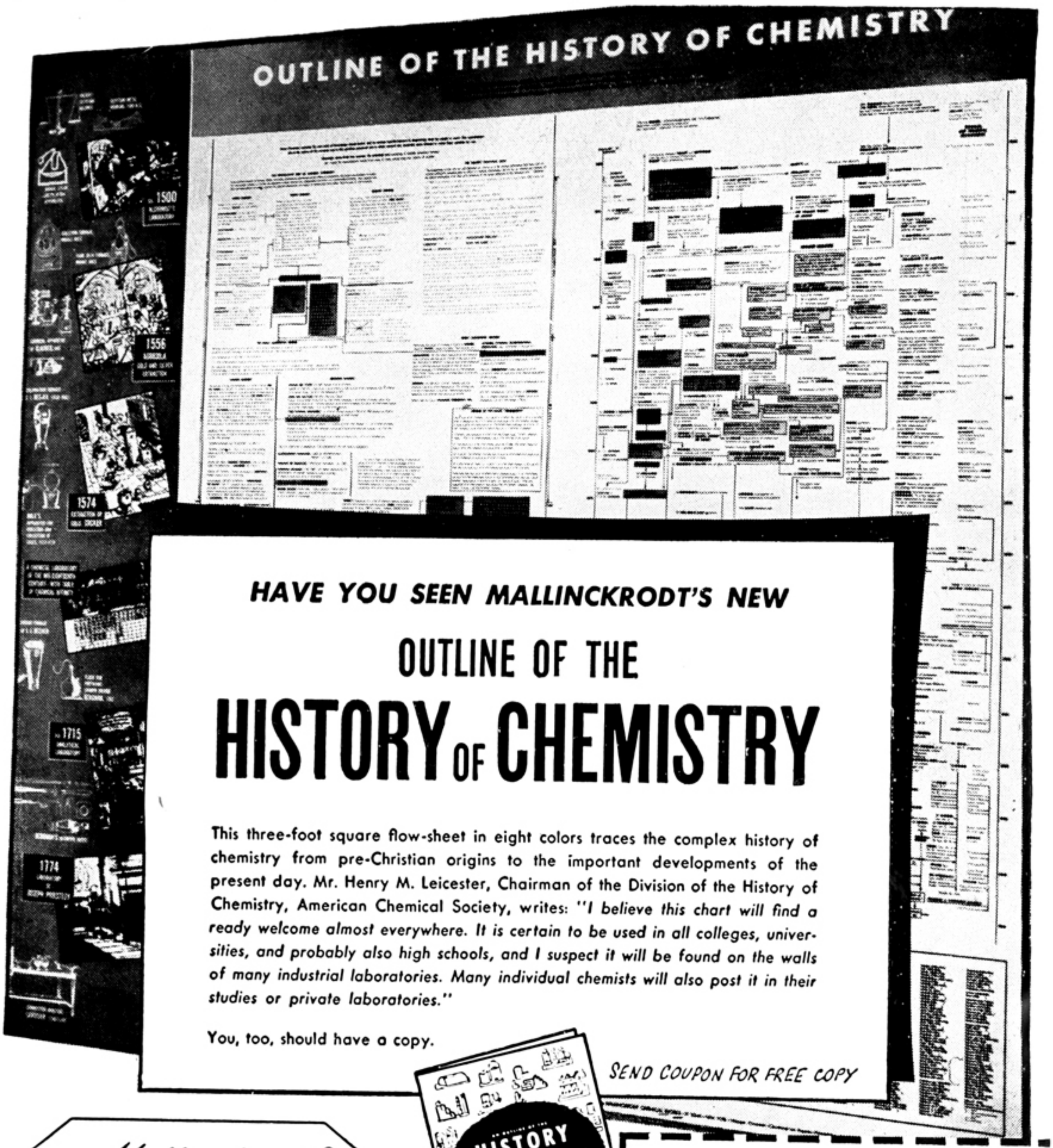
The humorist wrote back: "Yes, rheumatism and Saint Vitus' dance."

* * *

There once were two cats of Kilkenny;
Each thought there was one cat too many;
So they scratched and they fit
And they tore and they bit,
Till, instead of two cats, there wasn't any.

* * *

A high military official of World War II was questioned as to what weapon he believed would be decisive in World War III. "Scientific progress is advancing so rapidly that it is impossible to say what will be the principal arm in World War III," he declared after a moment. "However, I believe World War IV will be fought with bows and arrows."



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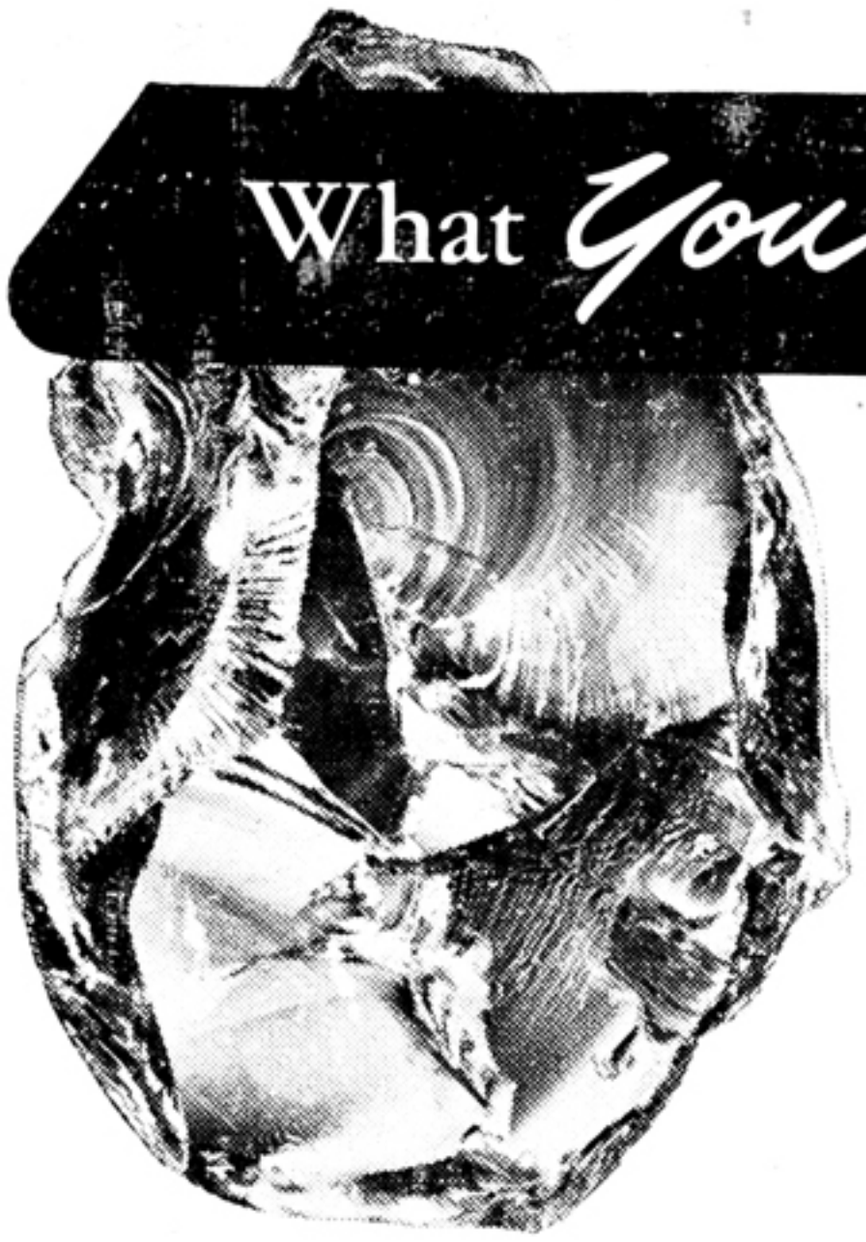

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