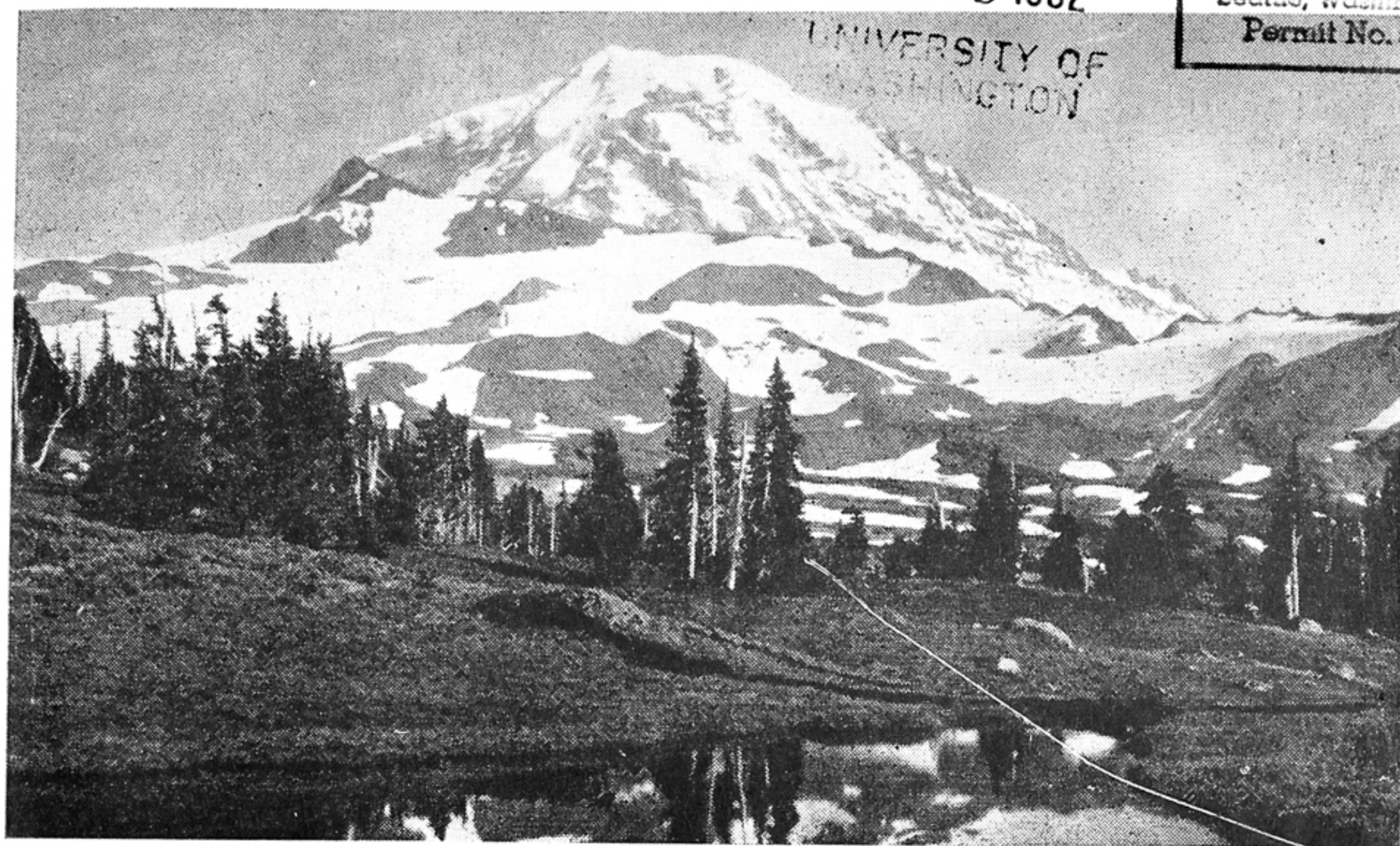


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DECEMBER, 1952

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PUGET SOUND CHEMIST

The **PUGET SOUND CHEMIST**

Published by the Puget Sound Section of the American Chemical Society

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CHAIRMEN'S MESSAGE

Having had first hand experience with ACS problems since 1947 I have learned that the society is doing more for chemists, both members and non-members, than many suspect.

This is a day when public relations are a must for practically every endeavor. Recognition of the chemist as a professional person will come more through this channel than any other, assuming, of course, that the chemists behavior merits it. The chemist need not be a forgotten and underpaid soul - he still has a long way to go, however, and his only hopes for betterment is through cooperative efforts - this means the membership in the ACS. Review the November issue of the Puget Sound Chemist and get a new member - both old and new members will be better off.

For those who can't spend time please rest assured that your dues are working and bringing a better life for you and the country. It is gratifying to see the increased action taken by the National ACS in the past several years toward professional goals for the chemist.

At the end of the year the chairman must thank all those who have volunteered or were elected as associates, for the help and time each has spent in keeping the local section functioning. The work is a rewarding experience. We usually are all in the same boat too—not enough time to do the best job.

In the future I trust that I may be of further service to the section. I look forward to the coming year's activities under our new officers and editor of the Puget Sound Chemist whose life story we shall see in an early issue. Support them.



There are two ways of being happy: we may either diminish our wants or augment our means—either will do—the result is the same; and it is for each man to decide for himself, and do that which happens to be the easiest.

—FRANKLIN

EDITORIAL

What Manpower Shortage?

We would judge from the columns of "Chemical and Engineering News" that it is the official policy of the American Chemical Society that there is a shortage of chemists and chemical engineers. Alden Emery's series entitled "Manpower" now numbers XV and there is no hint of an early conclusion to it. Walter Murphy puts out at least an editorial a month on manpower, and we can count on anyhow three or four feature articles per year on the subject, written as far as we can ascertain by gentlemen who are in positions where they either employ chemists or train them—and it's possible that they might be a bit prejudiced.

Unfortunately, to us as a working chemist the idea of a manpower shortage is far from proven, and to Emery, Murphy, and all the rest with their reams of statistics we are strongly tempted to say "so what!" Certainly enrollments in universities and colleges are decreasing and degrees granted in chemistry and chemical engineering are getting fewer—so what? Certainly the C&EN "positions Open" ads are once again appearing in respectable numbers, and some poor, struggling corporations seem even to be having to use their hard-earned pennies to have their help-wanted ads sets in display type—so what? Let those who employ chemists today call it a shortage just because they can't get exactly the man they want at the price they want to pay him. As far as we are concerned, we'll call it a transition from a labor surplus to a reasonably healthy balance between supply and demand, with perhaps even a bit more adjustment needed in the direction of more jobs or fewer job-seekers.

We ourselves see no real signs of a shortage of chemists or of chemical engineers. Apart from the small and relatively constant proportion of those dedicated souls who alone constitute the true chemical profession (and there will always be a shortage of these!), we

know of very few chemists who put in more than their forty hours a week—and we know of plenty of companies who lock the place up at five so their chemists can't work any longer than that. Hundreds of chemists are today doing totally non-essential work—some very competent chemist friends of ours, for instance, work in a tobacco "research laboratory", and apparently have no qualms that national defense is suffering because of their absence from jobs of a more critical nature. And, finally, to our minds the most telling point is that chemists' starting salaries today, no greater in real money than they were ten years ago, give no indication of any manpower shortage.

We can appreciate the point of view of those who run America's chemical industry—those with whose voice the American Chemical Society speaks. It's natural as when we ourselves go downtown and can't get exactly the car we it. But, speaking for chemists of the dirty-lab-coat type, we can't sincerely feel that it is too unhealthy that we are beginning for the first time in history in time of "peace" to be able to define some of our own conditions of employment. If that's what is meant by a manpower shortage, let's have more of it.

—Kansas City Chemist

JET PLANES AND THE CHEMIST

By

Richard McDonald

Since the Boeing Airplane Company is the Northwest's largest single employer, it is of interest to survey its use of chemists and chemical engineers.

As might be expected in a company of this type, the number of such professionals is indeed small. Only about 100 men out of over 30,000 are employed in positions where a chemical background is needed. This figure does not include chemical engineers whose work now lies in other fields, but it does include metallurgists and mechanical engineers whose work involves a great deal of chemistry.

The number of chemical engineers in the company has markedly increased since the last war and is still expanding. This increase is the consequence of jet propulsion systems, higher aircraft speeds, and greater temperature extremes.

Examples of problems which never existed on Boeing's B-29 bomber are those involved in cementing metal structural members in the B-52. Before the process could be used research had to establish the chemical properties of the adhesive, the most optimum curing and assembly cycle, and the metal surface which gave the best adhesion.

THE PROCESS UNIT

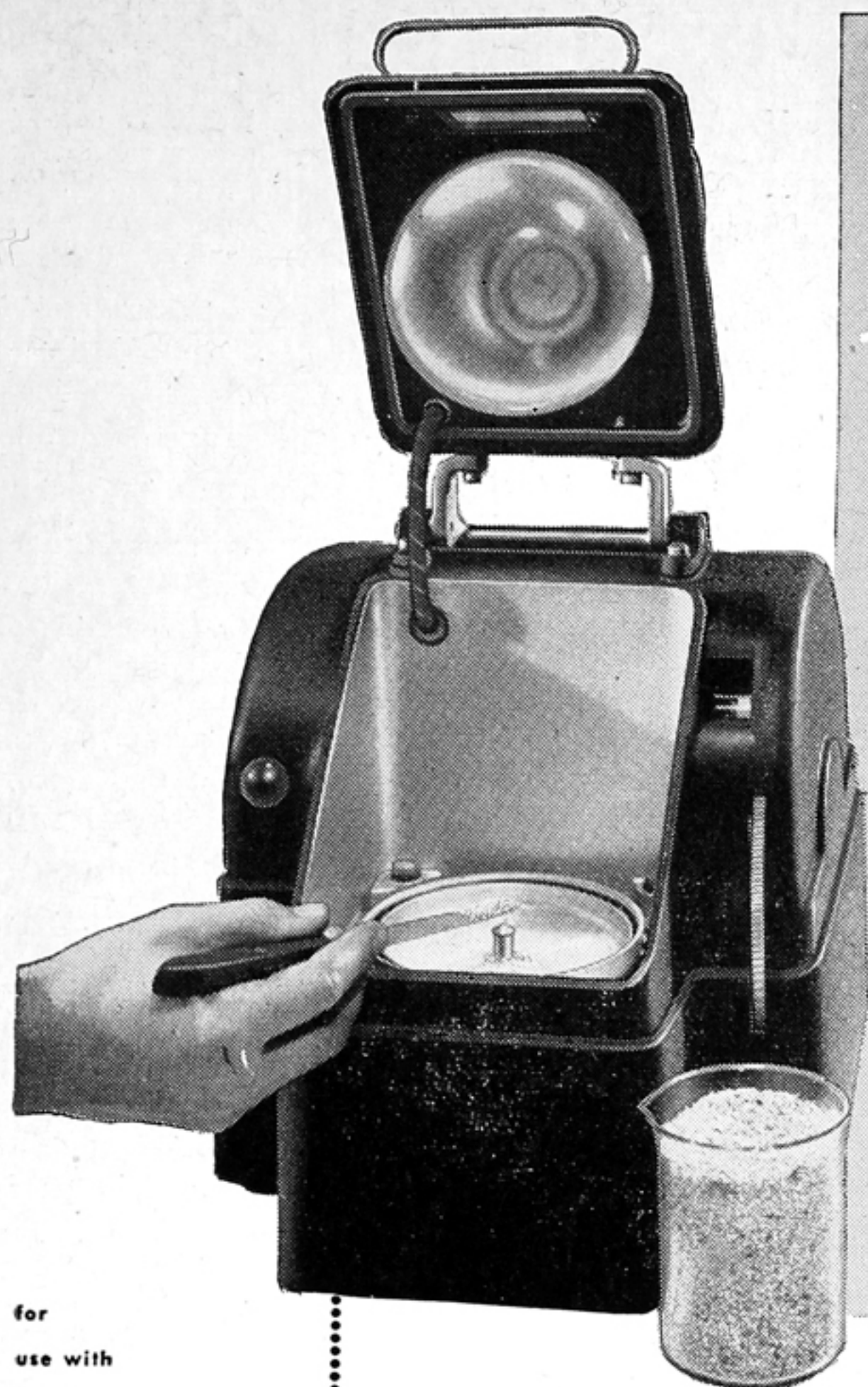
In the engineering department most of the chemists are concentrated in a group called the process unit which touches on every phase of aircraft construction. It is comprised of 90 men, each a specialist in some field such as mat molding, transparent materials, foam resins, rubber, and the spot welding of aluminum. About 40 percent could be considered as chemists.

The salesman who has a super glue to sell would call on the process unit, for it is here that new materials are developed and design information disseminated to the project engineers. The group's responsibility extends to manufacturing since they furnish production divisions with instructions for using new processes.

Nearly all of the unit's research is on the practical side. Work is being done in measuring the corrosive character of rocket fuels, in evaluating paints, in the fabrication of titanium. There is a small rubber laboratory where compounding is being done in the search for an improved low-temperature, fuel resistant rubber.

POWER PLANT UNIT

Among the engineers in the power plant unit, about ten with a chemical background are working on the problems of fuel cells, jet and rocket engines. New fuels must be evaluated for their chemical properties, heat content, and exhaust temperatures, and new materials such as



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QUALITY CONTROL LAB

Virtually all of Boeing's raw materials and sub-contracted parts are checked in some manner by the 30 men in the control lab. Such diverse tests are performed as determining the mold resistance of cloth, low temperature properties of rubber, spectrographic analysis of metals, and bond strength of adhesives. Besides the raw material control the staff is responsible for certain manufacturing process such as those involving metal plating and anodizing solutions.

Frequently the control lab is called upon to make air and water pollution surveys. Plant hazards arise from the use of cyanides and hydrofluoric acid in pickling baths, vapor degreasing, adhesives, and paint solvents.

OTHER CHEMISTS

The 17 metallurgists working at Boe-

ing's for this survey have been classified as chemists, since their methods and analysis and their work revolves about chemistry. There are also four men in a manufacturing research group who use their chemistry, and three more analytical chemists in the Industrial Products Division laboratory.

The Industrial Products Division, which is the manufacturing unit for the gas turbine, apparently has spared no expense in equipping their four month old lab. It is supplied with a spectrophotometer, automatic titrator, arc spectrograph, micro-combustion furnaces, the newest in balances, chemical microscope, a micro analysis lab, new metal furniture, and a room with various machine tools for preparing samples.

CONCLUSION

Knowing the important role of the chemist and chemical engineer at Boeing's now, one cannot imagine the many years when the company employed none at all. What work had to be done went to the consulting firms. As to the future, the number of chemists is sure to increase. Construction already has started on greatly expanded facilities for the control lab and process unit.

HELP WANTED

The Puget Sound Chemist has great need for reporters and others to help produce the magazine. If you have several hours free time a month and would like to take an active part in the Society, contact Eric Reaville at MA. 4203 or Dick McDonald. Contributions of news items from those living outside of Seattle are particularly welcome.

A seasick sailor was leaning over the rail. The captain, standing nearby, said sternly, "You can't be sick here."

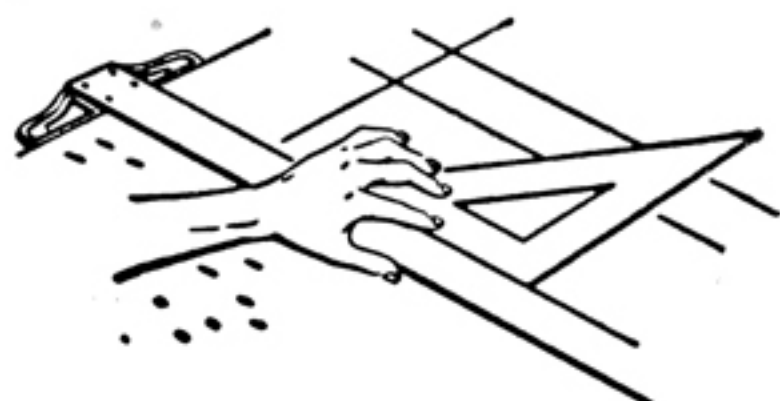
The sailor regarded the captain a minute, then said, sadly, "Watch."

"May I ask what your husband is doing?" one club woman asked another. "He's a naval surgeon." "Goodness," cried the first, "how doctors do specialize."

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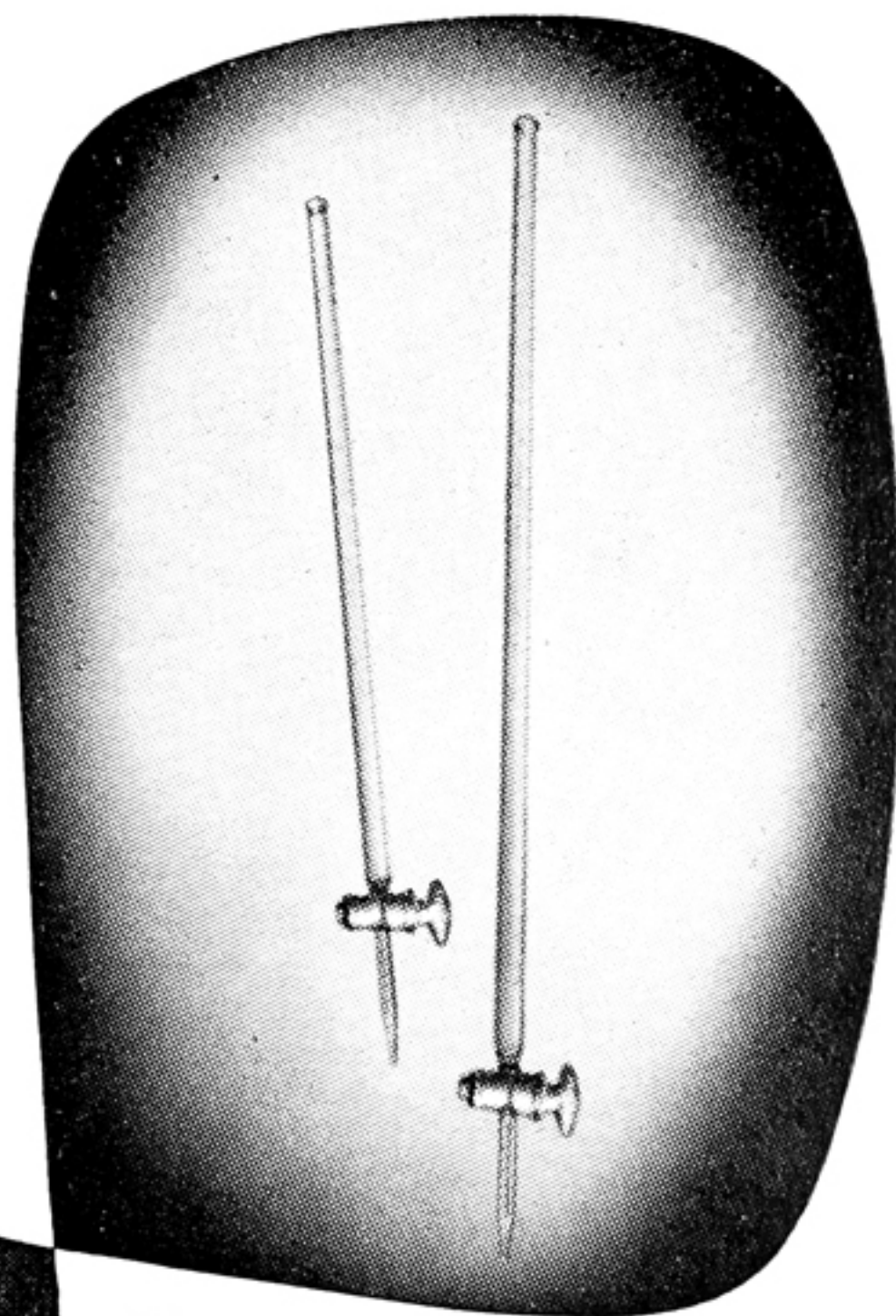
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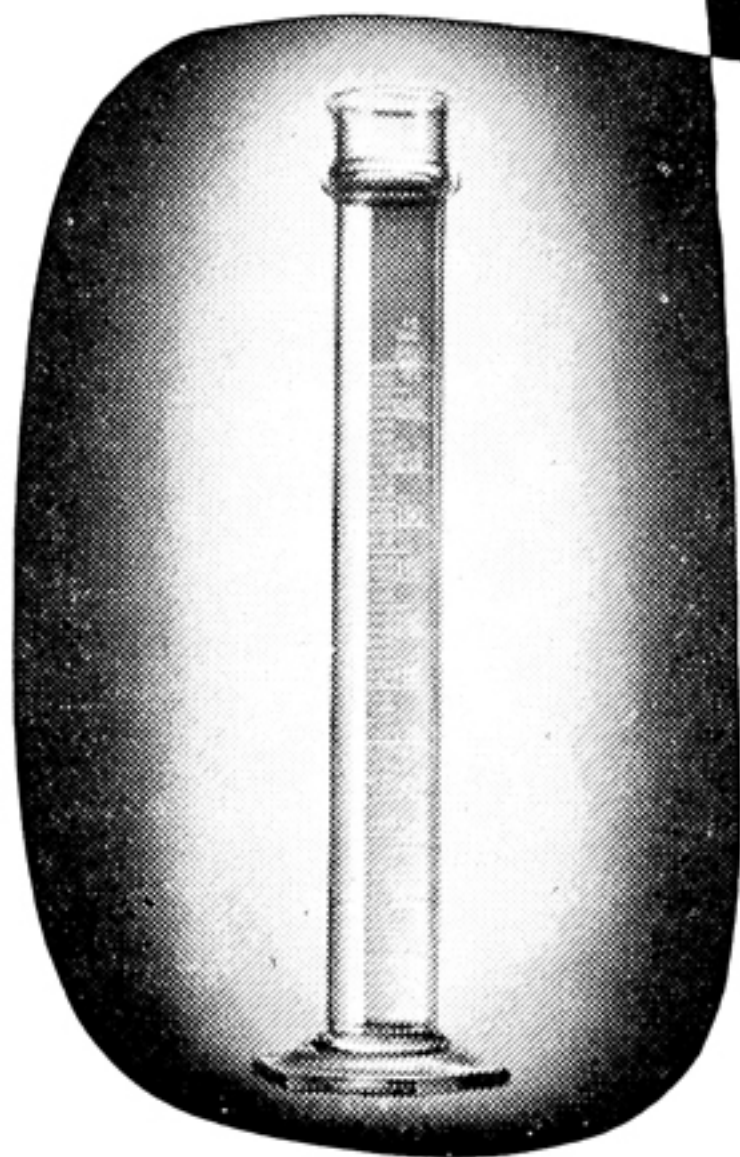
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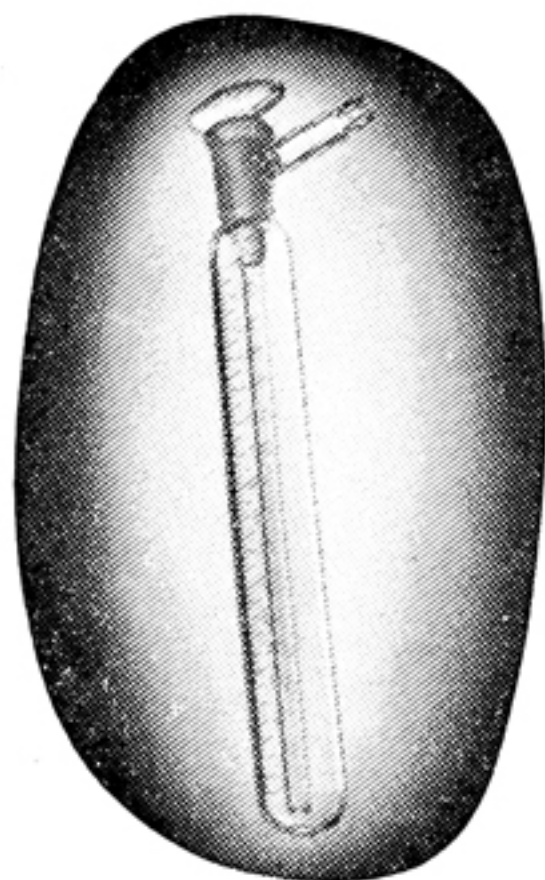
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DOES YOUR NOSE REALLY KNOW WHAT IT'S SMELLING?

"Odor-blindness" may be more common than color-blindness, according to Dr. Raoul Pantaleoni, a chemist who is director of the industrial division of van Ameringen-Haebler, Inc., New York.

Dr. Pantaleoni estimated that there may be more partial anosmics—individuals with imperfect odor perception—than color-blind people. He added that there is some evidence that odor-blindness, like color-blindness, is inherited.

"For proper sniffing, it is necessary to inhale with sufficient force to perceive the odor. Many persons in ordinary breathing do not exert sufficient pressure to propel materials up into the olfactory cleft.

"There are many reports in the literature of acute odor sensitivity among savages, animals and fish. This is due to the biological dependence of the uncivilized on olfaction for self-preservation as well as for preservation of the species. Most of the typical baits used by hunters are based on odor attraction and appeal to the nutritional or sexual interests of animals. Man is largely independent of his nose in procuring the necessities of life and therefore his olfactory acuity has degenerated. He does use olfaction to satisfy his sense of aesthetics.

A perfumer learns to identify odors in much the same way that he would learn a foreign language. By gradually increasing his "vocabulary" of odors, the perfumer learns to identify or select an odor quickly. "An experienced perfumer has to be conversant with at least 5,000 individual odors and combinations."

"Pleasant odors have been used to increase the sales appeal of many articles, particularly by adding a fragrance to the package," the speaker explained. "This is easily done by either spraying one of the extra wrappers in the box or by having a perfumed blotter or other perfumed porous substance in the package. Normally the fact that a pleasant odor has been added is deliberately concealed from the purchaser in order to

make the sensation of inspecting the article one in which other characteristics of the article will be found superior.

"Food stores, grocery stores and bakeries are using synthetic odors to accent the odor of freshly baked bread or freshly roasted coffee, or the more appealing fruit odors such as raspberry, as a plus factor in their sales efforts.

"A fragrance is a name reserved by the perfumer for the highest form of perfumery where there are no limitations placed on the perfumer and the final goal is the development of a perfume with the greatest aesthetic appeal. It also differs from an ordinary technical odor in that the use of a fragrance may be purely aesthetic or for the pleasure of the wearer.

"There are virtually no limitations placed on a perfumer creating a new fragrance. He obtains his materials from the most remote parts of the world, such as Ceylon, Madagascar, Paraguay, Grasse in France, and even Bali Ball.

"In addition to the fragrance, the other two factors which are important for the commercial success of a new perfume are the name and the type of merchandising. Perfumes which were commercial 'flops' have been reissued under a different name and package to meet with much greater success. In merchandising, one of the critical decisions to be made is whether to market the new fragrance through the prestige houses with deliberately restricted supply, or through drug stores with mass appeal and unrestricted supply, or through the house-to-house hostess type distribution."



RUSSIA'S A-BOMB MAY BE A BLESSING

Russia's atom bomb may be a blessing in disguise to America's peacetime nuclear energy program, said Dr. Clifford K. Beck, head of the physics department in North Carolina State College.

The Russian achievement of "an atomic explosion of some sort" was an important factor in stimulating a tremendous expansion of our atomic energy program in 1950. This program has reawakened an optimistic hope that nuclear power for other than military objectives can be economically and practically achieved.

Until 1950, no really serious effort had been made to build a nuclear reactor to produce power. Such studies as had been made merely served to focus attention on the tremendous difficulties which would be involved in such an attempt, and on the great gaps in the requisite knowledge and technology. A general pessimism existed on the future of nuclear power.

All that has now been replaced by a general optimism through the hopeful belief that practical civilian uses of nuclear power will be developed, and much sooner than had been anticipated, though of course it is clear that there are still many gaps in our technical knowledge, and very costly materials and chemical processes are involved.

The expansion of the atomic energy program was accompanied by major shifts in emphasis within the program. Extensive efforts are now being directed to three activities of "paramount importance"—increased nuclear fuel production capacity, versatile explosive weapons, and military vehicles propelled by nuclear power.

Along with the mobile nuclear vehicles, a material testing reactor and an experimental breeder reactor have been built and serious design studies have been conducted on other large scale nuclear reactors. This phase of the atomic energy program has implications far beyond the immediate objectives which

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would be achieved by the successful consummation of the projects.

A dozen large private businesses have teams actively studying the possibility of private investment, competitive business projects in nuclear processes. At least 20 colleges and universities are studying the possibility of building small research reactors and organizing training programs in nuclear engineering.

All this is in great contrast to the situation which prevailed in 1949 when the proposal was made "to build a research reactor and develop training programs in nuclear engineering at North Carolina State College." At that time this constituted the one lone attempt to develop a program of any significance outside of the Atomic Energy Commission program itself, and it was in contrast to the gen-

eral pessimism regarding the future possibilities of nuclear processes which prevailed at the time.



HAVE YOU OBTAINED A NEW MEMBER

The recent report on chemical industry expansion issued by the manufacturing Chemists Association and publicized in local newspapers and the C. & E. News is not to be taken at face value. For example one of the Seattle projects, a formaldehyde plant, was subsequently announced as having been withdrawn. The largest project listed in the Washington State survey is a nitrogen plant in Franklin County which actually has not proceeded beyond the speculation stage.

The Puget Sound Chemist has great need for reporters and others to help produce the magazine. If you have several hours free time a month and would like to take an active part in the Society, contact Eric Reaville at MA. 4203 or Dick McDonald. Contributions of news items from those living outside of Seattle are particularly welcome.

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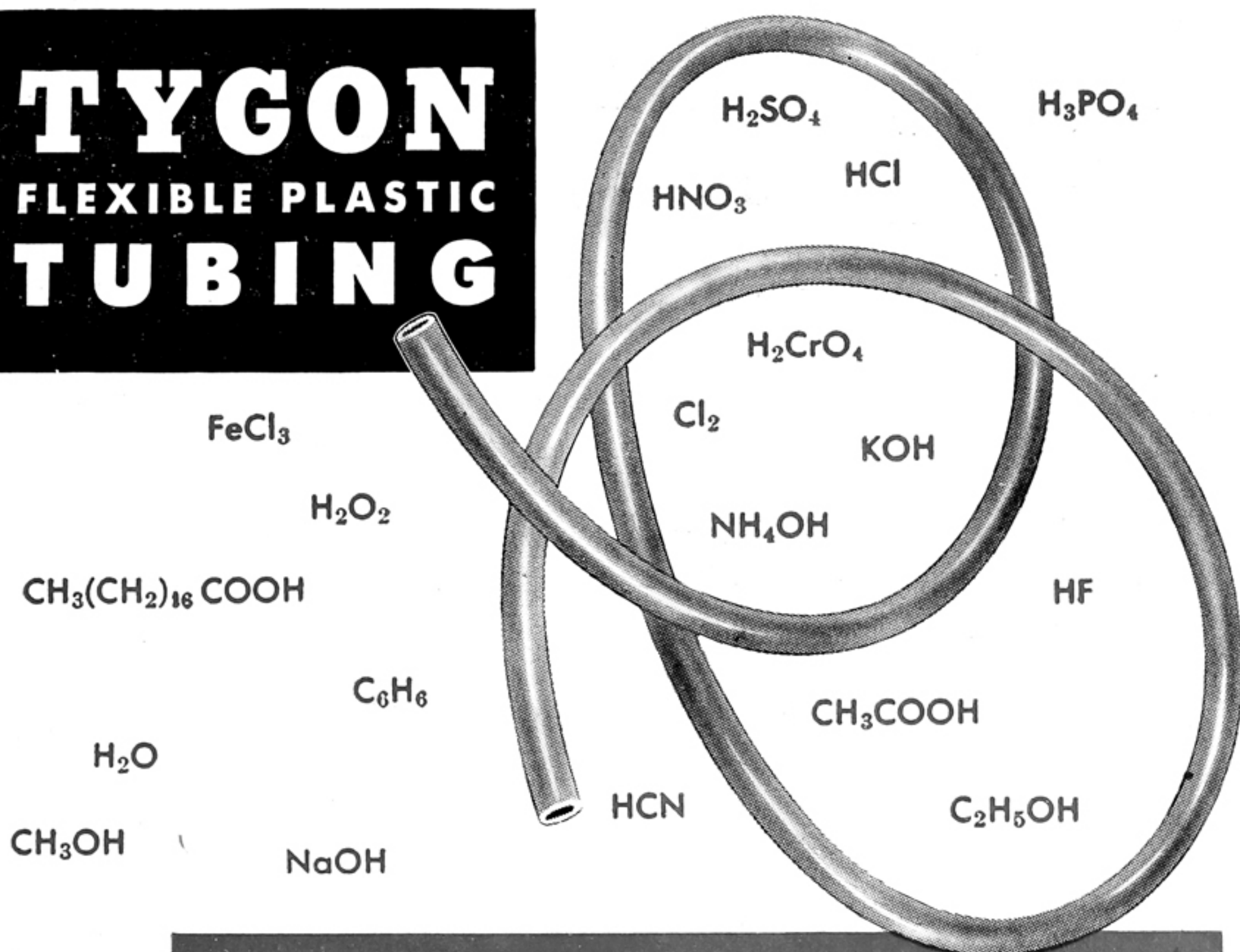
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The recent report on chemical industry expansion issued by the manufacturing Chemists Association and publicized in local newspapers and the C. & E. News is not to be taken at face value. For example one of the Seattle projects, a formaldehyde plant, was subsequently announced as having been withdrawn. The largest project listed in the Washington State survey is a nitrogen plant in Franklin County which actually has not proceeded beyond the speculation stage.

A famous author was autographing copies of his new novel in a large department store. One gentleman pleased him by bringing not only his new book for signature, but reprint editions of the author's two previous works as well.

"My wife likes your stuff," he remarked rather apologetically. "So I thought I'd give her these signed copies for a birthday present."

"A surprise, eh?" hazarded the author.

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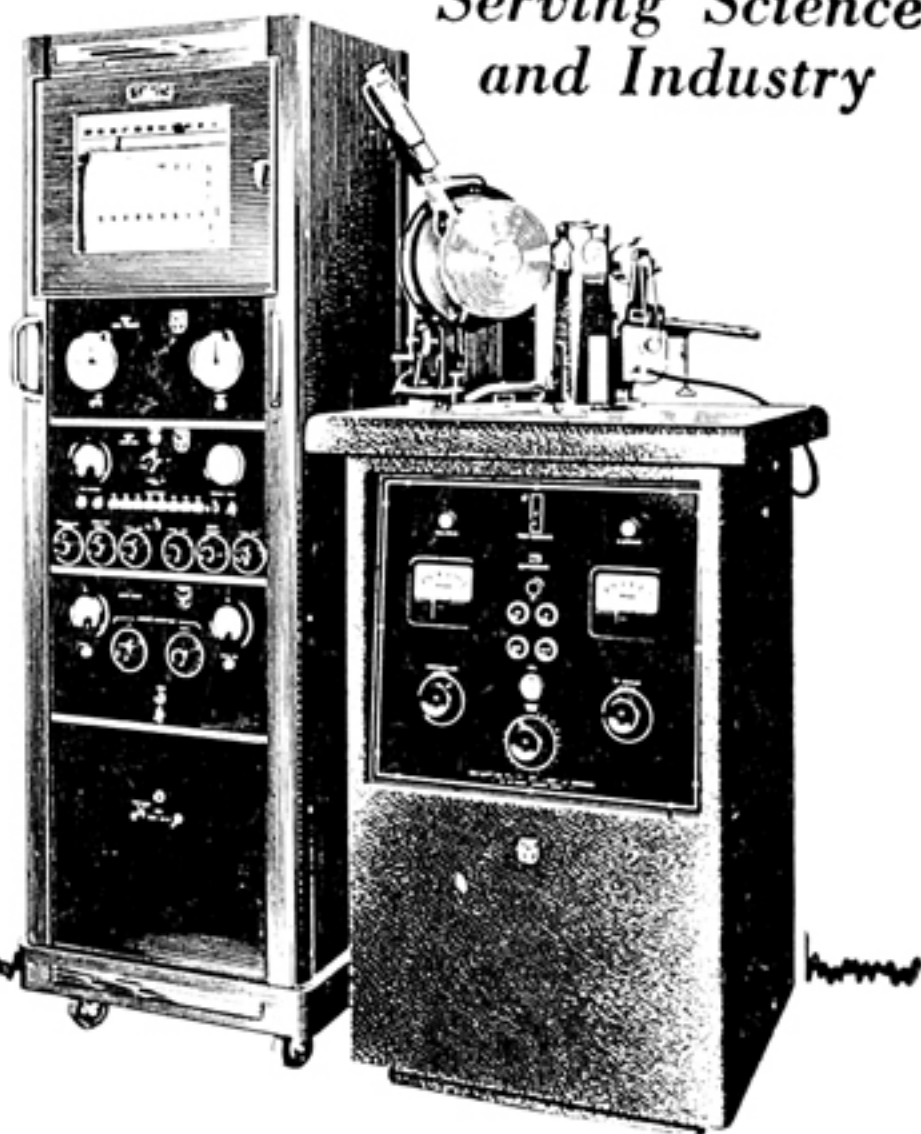
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