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BULLETIN OF THE PUGET SOUND SECTION OF THE AMERICAN CHEMICAL SOCIETY

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*January Meeting*

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

*Monday, January 17, 1948*

**8 P.M.**

**UNIVERSITY OF WASHINGTON**

**BAGLEY HALL**

**ROOM 131**



**SPEAKER:**

**HOBART WILLARD**

Professor of Analytical Chemistry  
University of Michigan

**SUBJECT:**

**TO BE ANNOUNCED**



**Refreshments will be served following the address**



# OUR DECEMBER SPEAKER . . .



DR. W. C. FERNELIUS



## BIOGRAPHY

W. Cornelius Fernelius, our December speaker, was born in Riverdale, Utah, on August 7, 1908. He attended Stanford University and received his AB degree in 1926. He served as assistant in chemistry at Stanford in 1926 and 1927 and received the AM degree in 1927. A fellowship followed and his doctorate was received in 1928. In 1930 he was also awarded a Ph.D. degree from Munich. From 1928 to 1932 Dr. Fernelius was an instructor in chemistry at Ohio State University. He was an Assistant Professor at the same institution from 1932 to 1936 and an Associate Professorship followed in the period 1936-1940. From 1940 to 1942 Dr. Fernelius served as Professor of Chemistry at Ohio State, going to Purdue University as Professor of Chemistry which position he held until 1947. During the period 1943-1946 he was on the Atomic Energy Project with Monsanto Chemical Company. In 1947 he became Chairman of the Department of Chemistry at Syracuse University. Dr. Fernelius was recently appointed Head

of the Department of Chemistry at Penn State College, which position he now holds.

Dr. Fernelius is a member of the A.C.S., the A.A.A.A. and the Ohio Academy. He is an Assistant Editor of "Chemical Abstracts" and was on the Editorial Board of "Chemical Reviews" from 1939 to 1941. He serves on the A.C.S. Committees on Professional Training of Chemists and Nomenclature, Spelling and Pronunciation. His main research interests are the ammonia systems of acids, bases and salts; reactivity of the alkali bases; nitridation; and molecular addition compounds.

Professor Fernelius' subject will be "Reactions of Solutions of Metals in Liquid Ammonia."



## Publication of the Puget Sound Chemist to Continue

Those of our readers who have been awaiting the decision as to the future of the Section Publication will, we hope, be glad to learn that the PSC will continue to be with us. At a meeting of the Executive Committee on November 22, it was unanimously resolved that publication should continue. Mr. C. V. Smith of Northwest Laboratories, currently serving as Assistant Editor will, with the new year, assume the mantle of Editorship.

The decision to continue with the magazine was based upon a number of factors, not the least important of which is our improved financial condition. A report on the recent postal card poll (if we may use the term) was given to the committee by Secretary Collis Bryan. It was rather disappointing to learn that only some 37% of the total membership have thus far troubled to voice their opinion in this matter, and by no means an overwhelming majority favored the continuance of the magazine at all costs. The Executive Committee deemed the response as generally favorable, however, and the support of those favoring continuation was of sufficient enthusiasm to warrant a definite effort toward continued publication.

## REED COLLEGE



Reed College, which opened its doors in 1911 and occupies a 100-acre campus in the Eastmoreland residential district of Portland, Oregon, is neither large nor rich. However, a succession of great teachers and an educational approach geared to the individual have combined to send from Reed's laboratories a constant parade of outstanding young scientists. It is chiefly from their work—from the achievements of the school's graduates—that Reed has acquired its enviable reputation in the sciences.

The evidence is documentary. Exhibit A is a study of the undergraduate origin of leading American physicists made some years ago by Oswald Blackwood of the University of Pittsburgh. Covering a period of about 20 years, it showed that Reed had placed more of its physics graduates in *American Men of Science* (1938 edition) than had the undergraduate colleges of such great universities as Illinois, Ohio State, Stanford and Yale. It was on a par with Columbia, Princeton and Johns Hopkins. And, in proportion to the size of its student body, it had placed almost twice as many men as the nearest school.

Exhibit B stemmed from a report made in 1947 by M. H. Trytten of the National Research Council which traced the undergraduate origin of physics granted Ph.D. degrees by American universities from 1936 through 1945. Research Corporation, by adjusting Trytten's figures to the total number of male students granted bachelor's degrees by the various schools over the same period, found that on a per capita basis, Reed had produced more than twice as many future Ph.D.s in physics as the next closest school. It was this study which led Research Corporation last year to make a special award for distinguished teaching to Professor A. A. Knowlton, who retired this spring after 33 years at the helm of Reed's physics department.

Exhibit C is the so-called Steelman report—the 1947 study of the President's Scientific Research Board. This exam-

ined the undergraduate origins of all natural scientists granted Ph.D.s in the previous decade and here, on a per capita basis, Reed stood fifth in the nation. On the Pacific Coast, it was second only to Cal Tech, which led the country.

Supplementing these exhibits is a mass of less official data. An example is the remarkable record of Reed mathematics graduates in the field of actuarial science. About a dozen today hold key actuarial positions with major insurance companies. The vice president of one large company recently listed Reed among the four schools which in his company's experience has best prepared their students for actuarial careers. (The others were Harvard, Princeton and the University of Toronto.) Impressed by this record, the General Education Board in 1939 sent four young graduate mathematicians to Reed to spend a year simply studying the teaching philosophy and methods of the man behind the record, Professor Frank Loxley Griffin.

During the war, Reed teamed up with the Army with satisfying results. Among 13 schools participating in the Air Forces premeteorological training program, Reed placed its trainees first in two fields tested, second in the other two. This was very much a combined effort—it was carried on under the acting presidency of Professor Arthur F. Scott, head of the chemistry department, and was jointly directed by Professors Knowlton and Griffin.

It is the rule rather than the exception for Reed science seniors to continue on to graduate school, and thanks to those who have gone before the welcome mat is generally out for them. Of 49 June graduates this year in mathematics and the sciences, 35 have been accepted for graduate study and 15 will work under fellowships or assistantships. In addition to Pacific Northwest universities, the institutions they will attend include Harvard, Rice, Cornell, Cal Tech, Rochester, Chicago, Brown, Rutgers, Stanford and

(Continued on Page 16)

## MEET THE NEWLY ELECTED OFFICERS



LESTER D. BERGER, JR., Chairman for 1949, was born in Richmondville, N. Y., on May 30, 1918. He attended Phillips Exeter Academy and Harvard College, receiving his A.B. in Chemistry from the latter institution in 1940. He then became a member of the Organic Synthesis Fellowship at Mellon Institute of Industrial Research, Pittsburgh, Pa., where his primary interest was the development of plant production methods for organic chemicals. In 1941 he joined the technical staff of Carbide and Carbon Chemicals Corporation in New York. In 1942 he was called to active duty in the Naval Reserve, serving in various capacities with the Navy throughout the war and returning to inactive duty in 1945 as a Lieutenant Commander. He then rejoined Carbide and Carbon and came to Seattle early in 1946 as District Manager. He is married and has two boys. Mr. Berger is a member of the Association of Harvard Chemists, A.C.S., Delta Upsilon, The Puget Sound Chemical Market Research Group and is retiring Editor of THE PUGET SOUND CHEMIST. What time this task has left for hobbies has been devoted to a dilettante interest in psychology and music.

DR. ROBERT D. SRENGER, Chairman-Elect for the coming year was born in Tacoma, Washington, on June 20, 1918. He attended The College of Puget Sound receiving his B.S. degree in 1940. His M.S. degree was received from Syracuse University in 1942. During 1942 he was also associated with E. I. duPont de Nemours & Co., as a research chemist in the Eastern Laboratories at Gibbstown, N. J. In 1943 he became an Assistant Professor of Chemistry at College of Puget Sound, returning to Syracuse as a Research Fellow the same year. His Ph.D. degree was received from Syracuse in May of 1946. He then returned to the Assistant Professorship at College of Puget Sound and was made an Associate Professor of Chemistry in 1948. Dr. Sprenger is married and has two children. His hobbies are skiing and sailing,

for which he finds many opportunities in the Puget Sound Country.

DR. AARON E. MARKHAM, our new Treasurer, was born in Phoenix, Arizona, on March 29, 1910. He attended the University of Washington, receiving his B.S. degree in Chemical Engineering in 1933, his M.S. in 1934. Leaving the University, he worked in the Port Angeles research laboratory of Rayonier, Inc., for 1½ years, and then became associated with J. H. Matson and F. C. Rogers in a testing laboratory in Seattle. He returned to the University and was awarded the Ph.D. degree in 1940, remaining as a research associate until 1942. He then went to the research laboratory of York Ice Machine Corp., until 1944, when he came to the Pulp Mills Research Project at the University, where he is now working. Dr. Markham is married and has two young daughters. He is a member of A.C.S., A.I.Ch.E., Sigma Xi, Phi Lambda Upsilon and Tau Beta Pi. His hobbies are mountaineering and house construction, a pastime which now occupies the majority of his spare minutes.

MR. COLLINS C. BRYAN, our very efficient Secretary has been re-elected for the 1949 year. His services have been invaluable to the section for two years, and we are indeed fortunate in being able to count on an able Secretary to assist in carrying out the functions of the Section.

REX J. ROBINSON, newly elected Alternate Councilor, received his primary education in Maxwell, Indiana, and was awarded the A.B. degree from DePauw University in 1925, where he was a Rector Scholar. His M.A. was received from the University of Wisconsin in 1927 and the Ph.D. degree followed from the same institution in 1929. During this period he served as a research Associate at Wisconsin. During this same period Dr. Robinson also served as a chemist with the Wisconsin Geological and Natural History Survey. In 1929 Dr. Robinson came to the University of Washing-

(Continued on Page 11)

# HOW THE CHEMIST MAY ACHIEVE PROFESSIONAL STATURE

DR. RAYMOND E. KIRK, F.A.I.C.

*Head, Department of Chemistry; Dean, Graduate School,  
Polytechnic Institute of Brooklyn.*

*(A paper presented at a joint meeting of the Syracuse section of the American Chemical Society and The American Institute of Chemists at Utica, N. Y.).*

Each one of us, each one of our colleagues, each member of the American Chemical Society, each member of The American Institute of Chemists achieves professional stature through his own efforts, conscious or unconscious. What is the pattern for us to recommend to our younger associates? Can a chemist, by taking thought, add to his professional stature and thus to the stature of chemists as a professional group. Why does one never question the professional stature of a physician, a clergyman or an attorney; or even of a dentist? Why was the term "realtor" invented and popularized?

It is not an adequate explanation to refer to the chronological sequence of the learned professions or to cite the activities of the American Medical Association or the American Bar Association! It is not enough to state that most chemists are employed by others and to remind me that chemists seldom serve the public directly.

Each individual in any one of these older professional groups contributes to the growth of the professional stature of his fellows, if he follows the time-approved patterns of the profession. When he departs from these procedures he lessens the professional stature of all his fellows. The members of these professions seem to sense this almost intuitively. Indoctrination in the tenet of the professional group takes place with the minimum of admonition and instruction, both in professional school and after graduation.

What patterns of behavior can we see forming as chemists emerge as a well-recognized professional group? What are the current "mores" of chemists? If we take thought about such matters in

meetings like this, we will aid in the growth of each and every chemist in his own professional stature. As the profession advances less formal indoctrination will be needed. The professional stature of chemists as of today is evidenced by our present realization that there is such a thing. Our teachers of yesterday spoke of chemistry as "both a science and a profession." We are thinking today of chemists as persons who follow a profession based on the science of chemistry. In my opinion much is told by this slight but real change in emphasis.

Each chemist who has devoted any portion of his own time to the expansion of science has added to his own professional stature and to that of his fellow. This is indeed the first duty of any scientist. Each chemist who has spoken a word of encouragement or praise to a high school student of chemistry has also done the same. The chemist who aids the science teachers of his village or city to do a better job in grade or high school science teaching is building professional stature at the level of the "grass roots." If he talks to the "Science Club" or finds a summer job in a laboratory for a "teenager" he will make an even greater impression on the "younger set" than he could possibly make by being awarded a Nobel Prize.

The chemist who will devote one evening a week to the School Board, or who will work as a volunteer with the local officials responsible for water supply or sewage disposal or street paving will find his professional stature growing at a very rapid rate. I know several engineers who serve their village as unpaid public officials. I regret that I know no chemists who do the same. If you know of chemists who do, you know chemists who are



achieving professional stature. We are all gaining by their success.

The primary motive in all these cases is unselfishness and devotion. Each one of us here can testify to the importance of this moving force among physicians. We never "cuss" the A.M.A. when we are sick! We know that good Doctor Brown will put our interest above his own personal convenience. Then too, each of you knows of many a poor family, the cost of whose medical care is entered on the frayed cuff of the devoted general practitioner of medicine.

The only difference that I can see is that chemists must first indicate their willingness to give unselfish and devoted service to society in general. All honor to the many chemists who, often unknown to their fellows, have contributed to the growth of the professional stature of chemists by their contributions to the welfare of their communities and the development of their fellow citizens.

The chemist who, even as a young man, attends local, regional and national meetings of his scientific and professional societies is taking the first steps toward achieving professional stature. How can one operate in a professional vacuum? The chemist interested in professional stature will soon find a chance to give service on committees and as officers of such groups. Especially in the smaller sections he can hardly escape it if he tried! (Incidentally that is one advantage for the young man in the smaller sections of the A.C.S.) He will find himself well repaid by the warm friendships he will make, but he is also achieving professional stature for himself and for his fellows. Those of us with graying hairs should be permitted here to recall the fine friends we made during the first years that we went to scientific meetings. Many of them have been friends for life. We know that in such matters one can both eat his cake and have it too! For thus does one achieve professional stature and enjoy the time and labor it takes to do the many chores of the section or chapter.

The chemist who speaks and writes for the general public may or may not

increase his own professional stature. If the job be well done he will, however, contribute greatly to the professional stature of chemists. Too many people still think of the chemist as a charlatan; a worker in black magic; a "long hair" who is, by turns, thought either to be silly and therefore to be restrained, or to be dangerous and therefore to be suppressed. A few people, on the other hand, have been led to think of the chemist as a miracle man. We know that each of these views is wrong! But how can the public realize this unless well qualified chemists tell them. We dare not leave the entire task to the science writers talented though they are. We need more Lawrences, more Kaempfers and more O'Neills. You can add other names. But we also need more Slossons, more Howes, more Wendts!

Moreover, we need more "amateurs" and more "semi-pros" in this matter of public information. Many of us can give an occasional radio talk. Many chemists talk to their local service clubs—Rotary, Lions, Kiwanis, and others. The professional stature of chemists grows apace when such talks are carefully prepared and given with vigor and enthusiasm. Science continues to remake the world we know and our good neighbors need our help in gaining an appreciation of both the philosophy and methodology of science. Who can do this any better than the chemist?

The chemist is no longer someone in an "ivory lab." He lives down your street. He rides the same bus to work. He plays on your soft ball team. His children play with yours. They go to the same school. Why should so many chemists be showing up in our town? Is the government building an atom bomb plant here? I heard some one call him "Doctor"! Should we ask him what to do about little Rollo's sinus trouble? What are chemists? What do they do? He seems to be a good egg, suppose we ask him to talk at the Lion's club! Here is a ready made situation. The chemist who meets it head-on will increase greatly his own professional stature and that of his group and of all chemists.

The chemist who takes a live and vigorous interest in politics will contribute to the achievement of professional stature by chemists. Recent events force me to enter a disclaimer here. I do not wish you to think that I am trying to sell the United States of America down the river. There is no diabolical plot in my mind directed by either the Vatican or the Kremlin. I am equally repelled by suggestions that we pass resolutions denouncing murder and adultery or in praise of home and mother.

We all realize, however, that society demands organized governments and that governments are operated by men, who are statesmen when we agree with them, and politicians when we disagree. Consequently, we must play our part as citizens in the orderly processes of a democratic society. Let me say at once that I do not anticipate that many of our state and federal officials will be chemists. Nor do I feel that chemists will very often be found as chairmen of party committees (chemists of Utica will remember that it does happen!) In my opinion it is very much more important that chemists join a political party in their ward than it is for them to run for city, state, or federal offices. I question whether new organizations are needed to enable chemists to function as citizens. However, I am willing to defend the right of any chemist to join such organizations if he thinks he should. I am sure that chemists are far more apt to be submerged rather than subversive!

Like all other chemists whom I know, I am a firm believer in the democratic tradition, even in the democratic tradition of disagreement. We need only ask that matters of disagreement be fairly stated and that discussions of differences of opinion not be allowed to become intemperate. The chemist should be as dispassionate and as analytical in his politics as he is in his science. Invective

and vituperation will neither butter parsnips nor win political arguments! Epithets are not unusual tools for chemists, although some college professors are overfond of epigrams.

The chemist will achieve professional stature who notes the patterns followed by those in his profession who have become leaders. As each of us contributes to his own professional stature, he contributes to the professional stature of all chemists. Thus each generation of chemists rises over the stature of previous generations. We all stand on the shoulders of those who have built so well, the noblest of the professions, that of the chemist.

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## **OUR COVER PAGE**

**Courtesy of  
Northwestern  
Mutual Fire  
Association**

(Con't from page 7)



ton as an Instructor, and he became a Professor of Chemistry in 1945. His main teaching interest has been Analytical Chemistry and his research work has resulted in the publication of about fifty papers in the fields of microchemistry, colorimetric analyses, potentiometric analyses and oceanographic chemistry. Professor Robinson is a member of A.C.S., Alpha Chi Sigma, Phi Lambda Upsilon, Phi Sigma, Sigma Xi, the American Association of University Professors and the Research Society (University of Washington). He served as a Councilor of the Puget Sound Section, A.C.S., in 1942. His hobbies are gardening, theatre, sports, music and literature.



### Forest Products Industry Directory Published



THE TIMBERMAN Magazine has just announced the publication of its 1948-49 Directory of the Forest Products Industry of Western North America. This Directory offers complete, detailed information on all branches of Western Forest Products Industry, including names, addresses, personnel and types of products. The personnel section lists the names, initials and correct business titles of more than 10,000 men in the Western Forest Products Industry.

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## I MARRIED A CHEMIST\*

In response to an editorial comment that some space would be available in subsequent issues of the Chemist for the distaff side of the family, I offer the following commentary. The alternative title might be "From the Sublime to the Ridiculous."

When "we" emerged from graduate school some years ago with a brand new degree, I felt that in embarking upon a career in chemistry (glibly referred to at that time as "the coming field") we were in the nature of empire builders. I have since discovered that, although there is a great deal of building entailed, it is on a smaller and much more odoriferous scale than what the current cinema depicts as empire building.

My intentions were of the best, so I followed the admonition of a writer who some years ago advised all wives to "take an active interest in your husband's work." As my chemical education is limited to a high school course in the subject, I was at a slight disadvantage to start with; but, nothing daunted, I struggled through several articles in one of the technical journals, and one evening alarmed my chemist with a series of what appeared to me to be intelligent questions. His reply, short and to the point, unkind but true, was "You wouldn't understand the terms."—and my plan to be a good wife died a-borning.

My mental picture of a chemist had always involved a rather intellectual-looking gentleman, garbed in a pristine white coat, inspecting a test tube with an austere satisfied expression on his face connoting complete understanding of what he saw. I was ill-prepared therefore, to see my husband starting off each morning looking more sleepy than intellectual and dressed in what resembled the dregs of a missionary barrel. He carried a lunch bucket, and was bent upon "pilot plant work."

After he had worked for some time on a particularly evil-smelling concoction, his wardrobe and person had reached an

irradicable saturation and emitted noxious fumes which, for some inexplicable reason, seemed just as strong at a distance as at the source. We were not infrequently greeted, upon entering a meticulous neighbor's house, by such remarks as, "I think there's a dead mouse behind the radiator," or "I'm sure there's a leak in the gas line, dear—do call the gas company." My idol in the white coat turned up with feet of something worse than clay. (I have yet to see a chemist in a white coat—but perhaps my experience has been too limited.)

I have attended a number of ACS conventions, and have come to the conclusion that chemists as a group are neither better nor worse than any other group—just different. And if one can resign oneself to peculiar hours (pilot plant work), peculiar odors (ditto) and the strange desire of chemists to congregate in an exclusive group at parties and drink chemistry, the life of a chemist's wife is not hopeless. After attending one of these conventions I remarked to a friend whose husband is a professor of economics at a large mid-western university, "The ACS members are the funniest bunch of people I ever saw." She replied "I'll bet they're no funnier than the American Economic Association," which I suppose is damning with faint praise.

As husbands, chemists seem to be to be about as satisfactory as non-chemists, i.e., their deficiencies are those common to men.

—B. U. Z.

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### An Executive Has Nothing to Do



As everybody knows . . . an executive has practically nothing to do . . . That is . . . except . . . to decide what is to be done . . . to tell somebody to do it . . . to listen to reasons why it should not be done . . . why it should be done by somebody else . . . or why it should be done in a different way . . . to prepare arguments in rebuttal that shall be convincing and conclusive.

To follow up to see if the thing has been done . . . to discover that it has not been done . . . to inquire why it has not been done . . . to listen to excuses from the person who should have done it . . . and did not do it . . . to follow up a second time to see if the thing has been done . . . to discover—

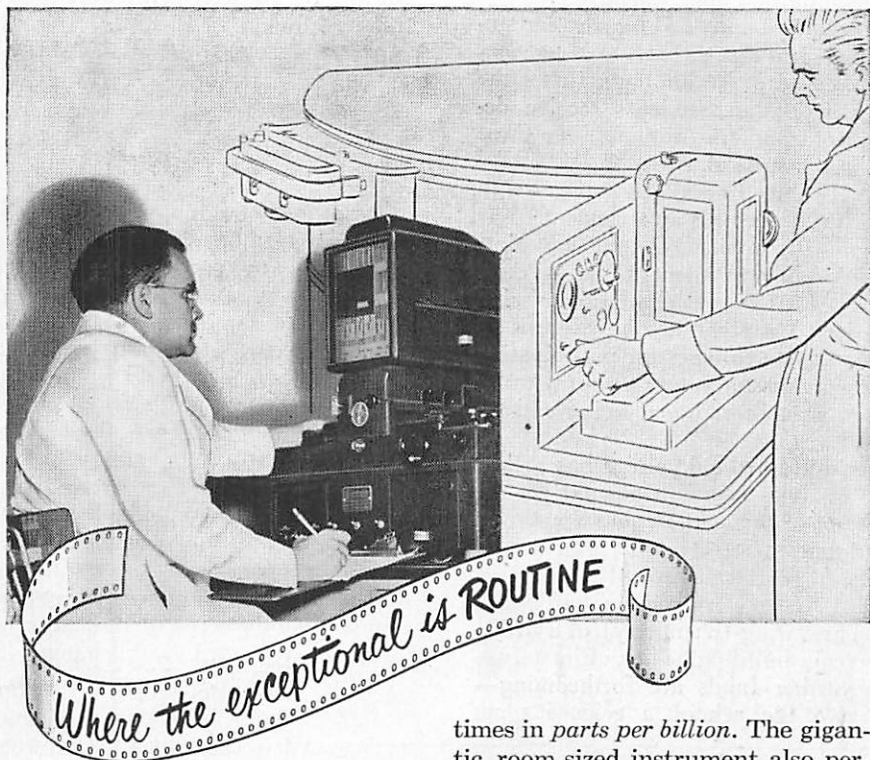
That it has been done, but done incorrectly . . . to point out how it should have been done . . . to conclude that as long as it has been done . . . it may as well be left as it is . . . to wonder if it is not time to get rid of a person who cannot do a thing correctly . . . to reflect that the person in fault has a wife and seven children and that certainly . . .

No other executive in the world would put up with him for another moment and that . . . in all probability . . . any successor would be just as bad . . . and probably worse . . . to consider how much simpler and better the thing would have been done had he done it himself in the first place . . . to reflect sadly that if he had done it himself . . . he would have been able to do it right . . .

In twenty minutes . . . but that as things turned out . . . he himself spent two days trying to find out why it was that it had taken somebody else three weeks to do it wrong . . . and then realized that such an idea would strike at the very foundation of the belief of all employees that . . . an executive has nothing to do.

—From the Condenser.

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the Institute of Paper Chemistry.

As usual, a number of fourth-year students will transfer this fall to Massachusetts Institute of Technology. Under the Reed-M.I.T. plan, students receive degrees from both institutions after three years' work at Reed, two at M.I.T. (Reed is one of twelve liberal arts colleges with which M.I.T. has this arrangement.)

Reed will, in turn, for the first time receive graduate students of its own this fall. The Atomic Energy Commission has selected it alone among exclusively undergraduate colleges for participation in the commission's post-doctoral training program in radio-medicine and biology.

The little Portland college has racked up its notable accomplishments over the handicap of inadequate basement and attic laboratories. Happily, an initial step has been taken toward elimination of that block. Construction has begun on the first wing (chemistry) of a \$750,000 science building, which ultimately—when further funds are forthcoming—will give the school a science plant

worthy of Reed's distinguished scientific tradition.

—O. R. DAVIDSON  
Reed College



## CHYMISTS

In the office of John Schneider, Monsanto patent attorney at St. Louis, is a drawing board lettered with an inscription first penned in the seventeenth century by the famous alchemist Johann Joachim Becher. Originally copied from a 1930 Christmas card of the Nu Chapter of Alpha Chi Sigma, national chemical fraternity, the visionary Becher's confession reads:

"The chymists (sic) are a strange class of mortals impelled by an almost insane impulse to seek their pleasure among smoke and vapor, soot and flame, poisons and poverty; yet among these evils I seem to live so sweetly that I may die if I would change places with the Persian King."—Monsanto Magazine.

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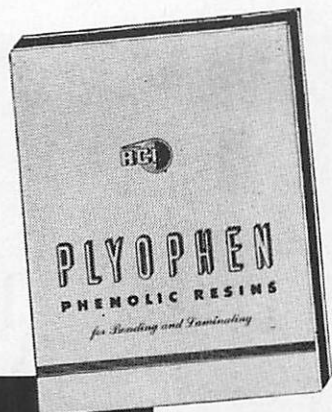
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| <b>No. 5013</b> | With high strength papers, produces laminates with 35,000 to 40,000 lbs. tensile strength at 150 to 250 psi. Useful for paper face sheeting and bag molding, and in the manufacture of plastic-faced plywood. |
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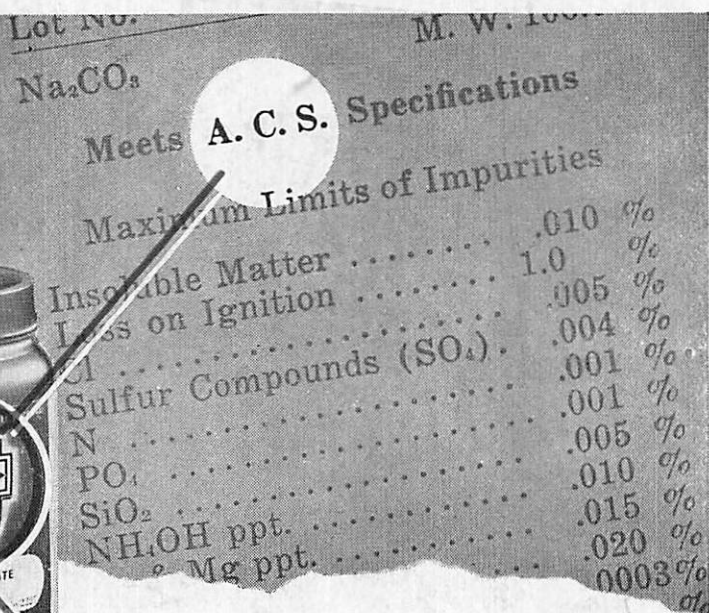
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