

Spring 4-1960

## Volume 71 - Issue 7 - April, 1960

Rose Technic Staff

*Rose-Hulman Institute of Technology*

Follow this and additional works at: <https://scholar.rose-hulman.edu/technic>

---

### Recommended Citation

Staff, Rose Technic, "Volume 71 - Issue 7 - April, 1960" (1960). *Technic*. 148.  
<https://scholar.rose-hulman.edu/technic/148>

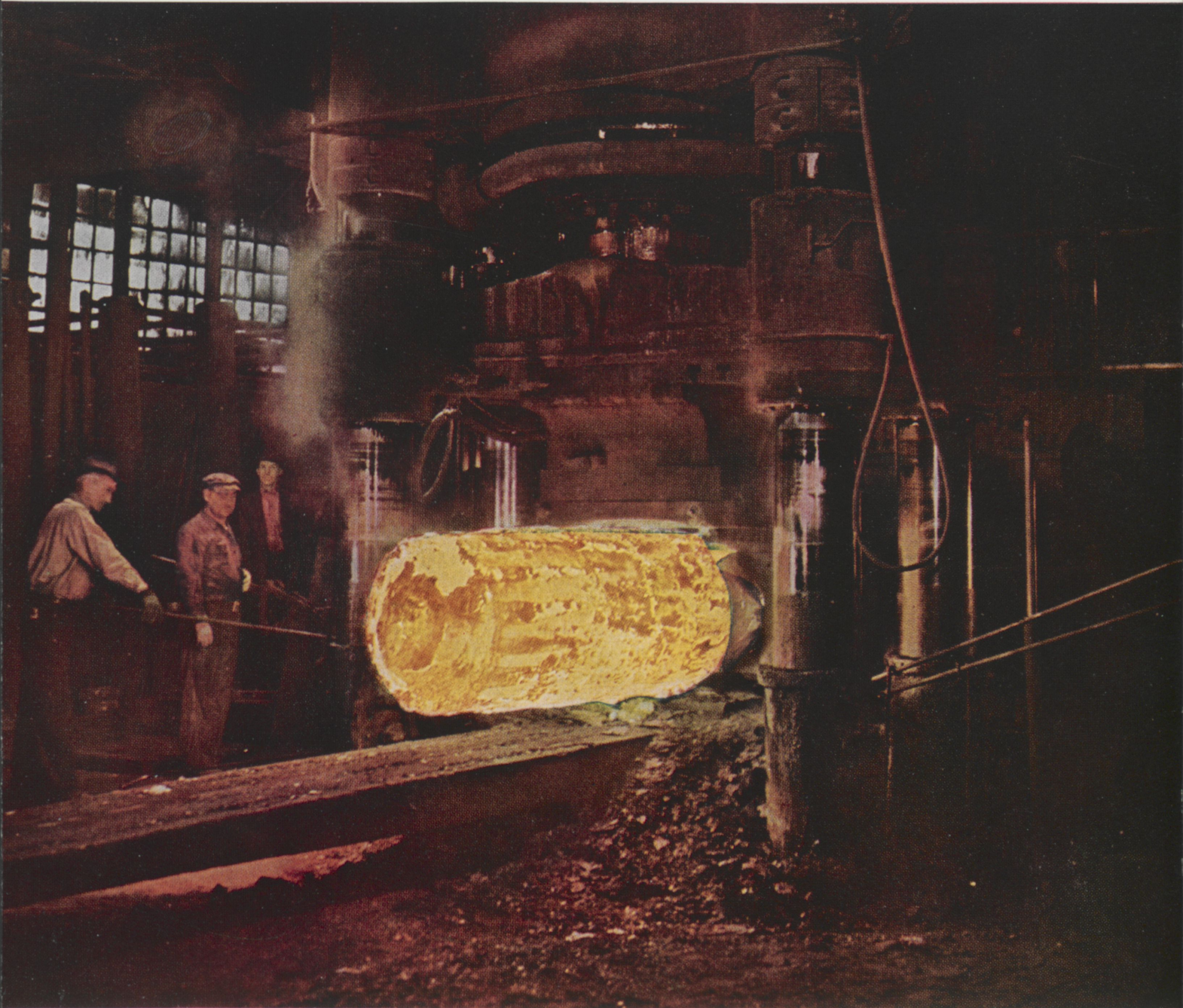
Disclaimer: Archived issues of the Rose-Hulman yearbook, which were compiled by students, may contain stereotyped, insensitive or inappropriate content, such as images, that reflected prejudicial attitudes of their day--attitudes that should not have been acceptable then, and which would be widely condemned by today's standards. Rose-Hulman is presenting the yearbooks as originally published because they are an archival record of a point in time. To remove offensive material now would, in essence, sanitize history by erasing the stereotypes and prejudices from historical record as if they never existed.

This Book is brought to you for free and open access by the Student Newspaper at Rose-Hulman Scholar. It has been accepted for inclusion in Technic by an authorized administrator of Rose-Hulman Scholar. For more information, please contact [weir1@rose-hulman.edu](mailto:weir1@rose-hulman.edu).



# Rose Technic

*April, 1960*



## *In this Issue*

PROFESSIONALISM

COLLEGE VACUUM

THE INDETERMINACY PRINCIPLE





**Under fire**, the performance of men and machines depends on what they are made of. United States Steel makes the materials for the machines, whether it's a very tough armor plate, or heat-resistant alloy, or Stainless Steels.

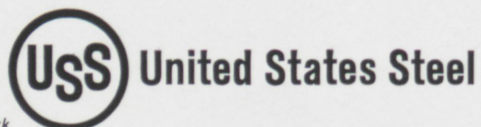
You might be interested in some of the USS steels developed specifically for aircraft and missiles:

USS Strux, an alloy steel with close to 300,000 psi tensile strength primarily for aircraft landing gears;

USS Airsteel X-200, an air-hardenable alloy steel with 230,000 psi yield strength for aircraft sheet and missile applications; USS 12MoV and USS 17-5 MnV Stainless Steels for high-speed aircraft and missiles;

Stainless "W", a precipitation-hardenable Stainless Steel.

New special metals, new methods for making them, present an exciting challenge. Men willing to accept this challenge—civil, industrial, mechanical, metallurgical, ceramic, electrical or chemical engineers—have a future with United States Steel. For details, just send the coupon.



*USS is a registered trademark*

United States Steel Corporation  
Personnel Division  
525 William Penn Place  
Pittsburgh 30, Pennsylvania

Please send me the booklet, "Paths of Opportunity."

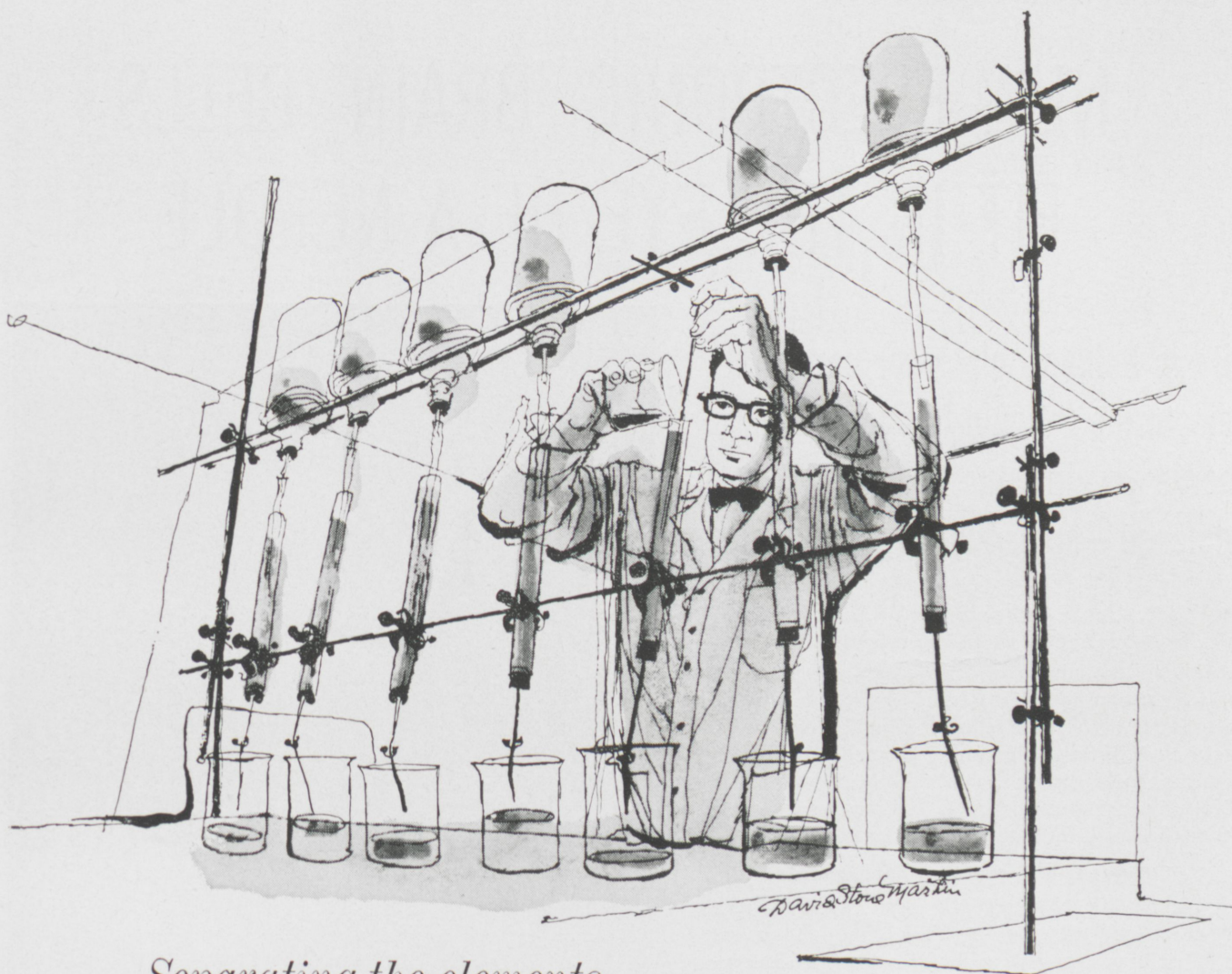
Name

School

Address

City  Zone  State





## *Separating the elements... to form new and better metals*

*In their search for stronger, tougher, or more heat-resistant metallic materials, General Motors Research chemists use the new anion exchange resin technique to obtain exact analyses of complex experimental alloys.*

Looking for a job with an exceptional future? Are you interested in electronics . . . metals . . . jet propulsion . . . automobiles . . . inertial guidance systems? These are just a few of many exciting fields of science and engineering at General Motors.

Opportunities are virtually endless at GM. Progress can be rapid for men who have ability, enthusiasm and potential. You grow as you learn, moving up through your department and division, or over to other divisions.

GM provides financial aid if you go on for your Master's or Doctor's. Also, undergrads can work at GM during the summer and gain worthwhile experience.

For all the details on a rewarding career, see your Placement Officer or write to General Motors, Personnel Staff, Detroit 2, Michigan.

# GENERAL MOTORS

GM positions now available in these fields for men holding Bachelor's, Master's and Doctor's degrees: Mechanical, Electrical, Industrial, Metallurgical, Chemical, Aeronautical and Ceramic Engineering • Mathematics • Industrial Design • Physics • Chemistry • Engineering Mechanics • Business Administration and Related Fields



# NEW ELECTRONIC "BRAIN" CELLS FIT IN THE EYE OF A NEEDLE

Basic building block for compact, electronic "thought savers" will serve you in your office, in defense — someday, in your home

● Today, science not only is working on labor-saving devices—but on *thought-saving* devices as well.

These "thought savers" are electronic computers—wonder-workers that free us from tedious mental work and are capable of astoundingly rapid computations. Naturally, the more *compact* these computers can be made, the more applications they can have. Not only in industry, defense and research—but in the office and ultimately in the home.

## **"Squeezing" exacting components**

A big advance has recently been made by RCA research towards making these "thought savers" smaller than ever before, for broader than ever use.

Take, for example, the new "logic" circuit which actually fits in the eye of a needle. It is a new computer component developed by RCA.

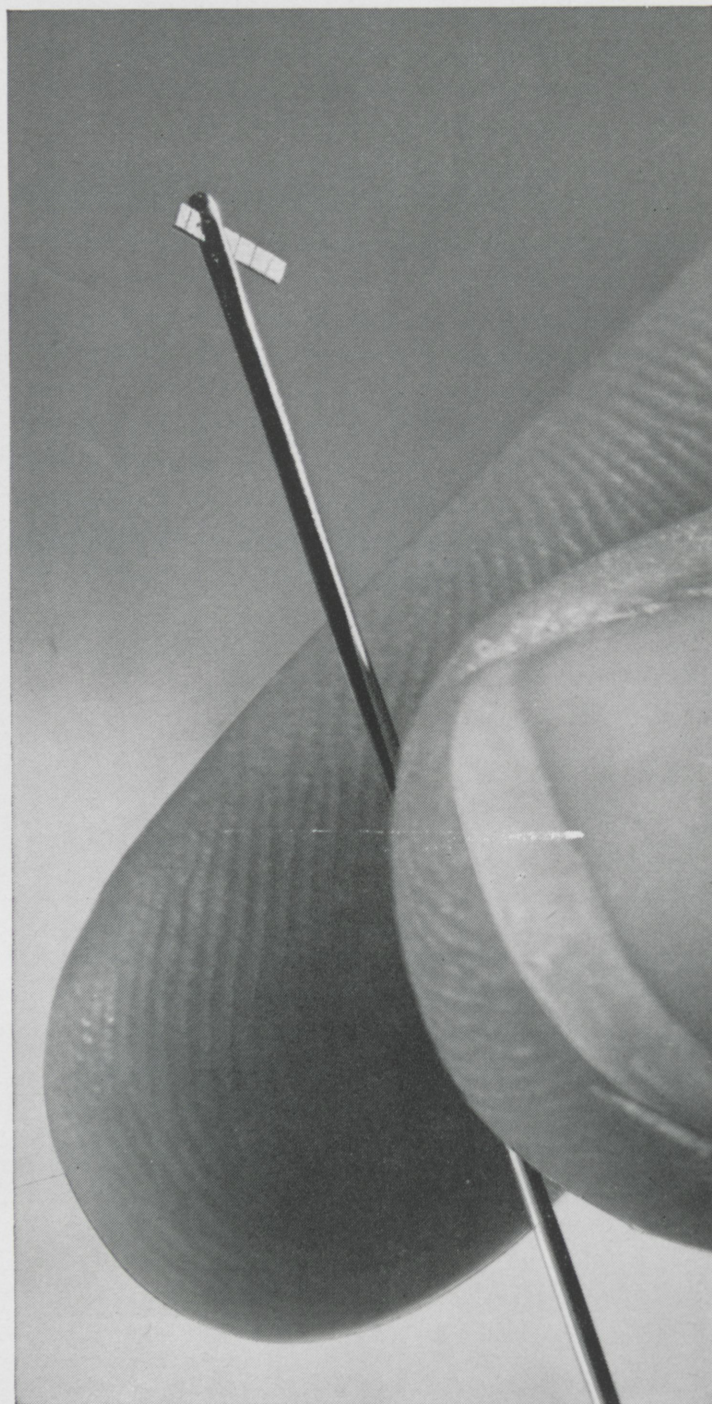
*Today, the electronic functions of this micro-miniature device require a whole fistful of wires, resistors, transistors and condensers.*

These tiny units will calculate, sort, "remember," and will control the flow of information in tomorrow's computers. Yet they are so small that 100,000,000 of them will fit into one cubic foot!

## **Cutting computers down to home size**

This extreme reduction in size may mean that someday cigar-box-size electronic brains may help you in your home—programming your automatic appliances, and keeping track of household accounts.

*Remarkable progress in micro-miniaturization is another step forward by RCA—leader in radio, television, in communications and in all electronics—for home, office, and nation.*



Needle's eye holds electronic "brain" cells — Photograph shows how new RCA "logic" element can be contained in the eye of a sewing needle.



RADIO CORPORATION OF AMERICA  
THE MOST TRUSTED NAME IN ELECTRONICS



# Rose Technic

VOLUME LXXI, NO. 7

APRIL, 1960

DAVID TRUEB  
JAMES FUNK  
Co-Editors

JON STILES  
Business Manager

T. C. COPELAND  
DALE OEXMANN  
Assistant Editors

RON STAGGS  
LARRY BERGER  
MARSHALL GARINO  
Student Advisors

PROF. J. L. BLOXOME, SR.  
Faculty Advisor

## Editorial Staff

Max Goodwin      John Ulmer

## Contributing Staff

JAY HIRT

Hal Booher      Bill Perkins  
Ray Clark      Gary Phipps  
Terry Halcom      Bob Schukai  
John Jervis      Fred Wernicke  
Ken Miller      Bob Checkley  
Fred Wright

## Feature Staff

JIM GATES

Bob Michael      Larry Shaffer  
Jon Modesitt      Bob Franzwa

## Advertising and Business Staff

NEIL IRWIN

Jack Munro      Bob McCoige  
Bob Stark

## Circulation Staff

DEAN POWELL

Jim Godwin      Jerry Waltz  
John Egan      Louis Roehm  
Bill Steele      Rick Rapson  
Dan LaGatta      Tom Hormuth

## Art Staff

Jay Hirt      Tom Bosworth

Member of  
Engineering College Magazines  
Associated

Publisher's Representative  
LITTELL-MURRAY-BARNHILL, INC.  
369 Lexington Avenue,  
N. Y. 17, N. Y.  
and 737 N. Michigan Avenue,  
Chicago 11, Illinois

## Contents

Editorial .....	9
Professionalism .....	12
Powers Sources .....	14
The Indeterminacy Principle .....	15
College Vacuum .....	19

\* \* \* \*

Letters to the Editors .....	4
From the Presidents Desk .....	11
Campus Survey .....	16
Fraternity Notes .....	20
Research and Development .....	22
Alumni News .....	24
Library Notes .....	26
Locker Rumors .....	27
Sly Droolings .....	36

\* \* \* \*

Advertising Index .....	31
-------------------------	----

—Cut Courtesy Baldwin

## Cover Note

A red-hot forging emerges from the press at Baldwin Locomotive Works.

PRINTED BY MOORE-LANGEN PRINTING AND PUBLISHING CO.  
140 North Sixth Street, Terre Haute, Ind.

Published monthly except June, July, August, and September by the Students of Rose Polytechnic Institute. Subscription \$2.00 per year. Address all communications to the ROSE TECHNIC, Rose Polytechnic Institute, Terre Haute, Indiana.

Entered in the Post-office at Terre Haute as second-class matter, as a monthly during the school year, under the act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in section 1103, Act of October 3, 1917, authorized December 13, 1918. This magazine does not necessarily agree with the opinions expressed by its contributors.



To the Editors of the Technic and the Student Body of Rose:

Throughout the school year the Rose Student Body and faculty enjoy a unique position. Speakers famous all over the world, films on a variety of subjects, and entertainment of fine quality are made available free of charge. Conveniently scheduled during the main part of the day, they offer an opportunity for the Rose Man to broaden his interests and keep in touch with "the outside world."

However, a problem has developed. Small attendance at convocations in the past years has shown that little interest has been generated. Crowds so small as to be embarrassing are present for the majority of them.

I believe that one cause for this small attendance is that the Student Body, and faculty too, are not informed in an adequate manner of the content of the individual convocations. Word of mouth and mimeographed signs seem to be the only communication link between the Convocation Committee and the public.

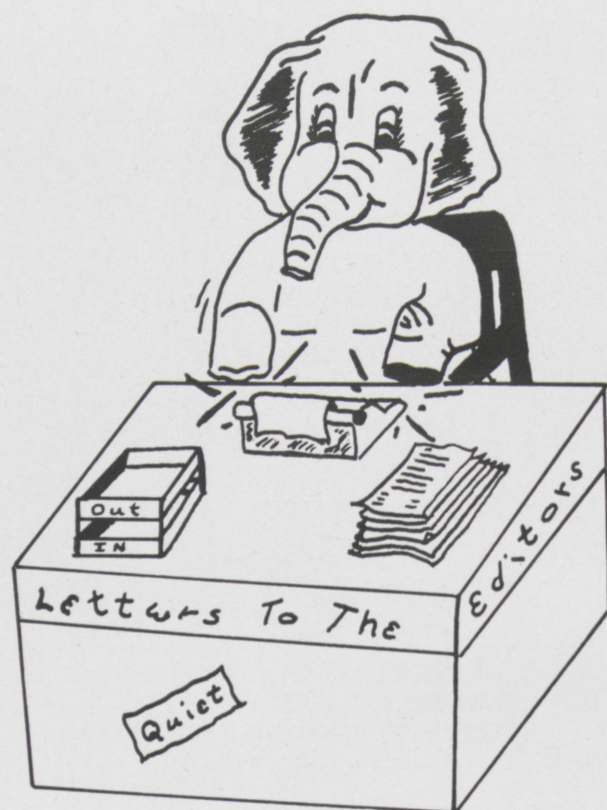
In the fall of 1959 a new policy was adopted by the Institute of closing the doors of the library and snack bar during all convocations. I have attended a majority of the convocations this year and in years past, and to me there appears to be no significant increase in the number of persons attending any given convocation. I believe, therefore, that this policy should be discarded in favor of a newer and more positive approach.

Why not create a desire in the Men of Rose to want to go to convocations? Perhaps attacking the problem in this manner could provide the solution. As suggestions I would like to forward these two ideas. Why not a concerted effort on the part of the faculty to back them by voicing comments on their content to classes on scheduled convocation days. Secondly, an announcement sheet could be issued by the Convocation Committee giving a brief but interesting description of the subject. This could be read the students in their classes. By now I'm sure other suggestions have occurred to you, and the Convocation Committee would undoubtedly be happy to hear your opinion.

Primarily, though, lets make convocations a voluntary thing with no school-imposed restrictions as to where you can and cannot go during convocation hour. Instead, let the Men of Rose decide for themselves whether they will go to the library, student center, or convocation, and then keep them well enough informed to want to select the convocation.

Sincerely yours,

William A. Carter, Jr.





# A special message to everyone born between 1938 and 1942

Hey, there! You with the freshly-starched diploma in your hand! Discouraged with your first hard look at this topsy-turvy world? Think someone chopped out the rungs in the ladder of success? Think opportunity is dead?

Don't you believe it! Today, opportunity under America's free enterprise system is more alive than ever! Within the next few years, you'll see space travel programs accelerate and inspire now unheard-of products. You'll see standards of living go up. You'll see exciting new jobs created out of nowhere.

Take our own business, for example. Oil. In the next few years, we *know* Standard Oil will create a cornucopia of new products and new processes. And that means opportunity! But it takes time, work, and study to turn opportunity into advancement. People who are willing to put forth the extra effort to prepare for greater re-

sponsibility will find opportunity awaiting them.

Is opportunity dead? Whenever we hear that question, we think of the thousands of people who won promotions last year at Standard Oil and the fact that most of our officers and directors since this company started have come up through the ranks. No Standard job is too big a target for any employee...if he listens for opportunity's knock and is ready for it when it comes.

Opportunity dead? Not by a long shot!

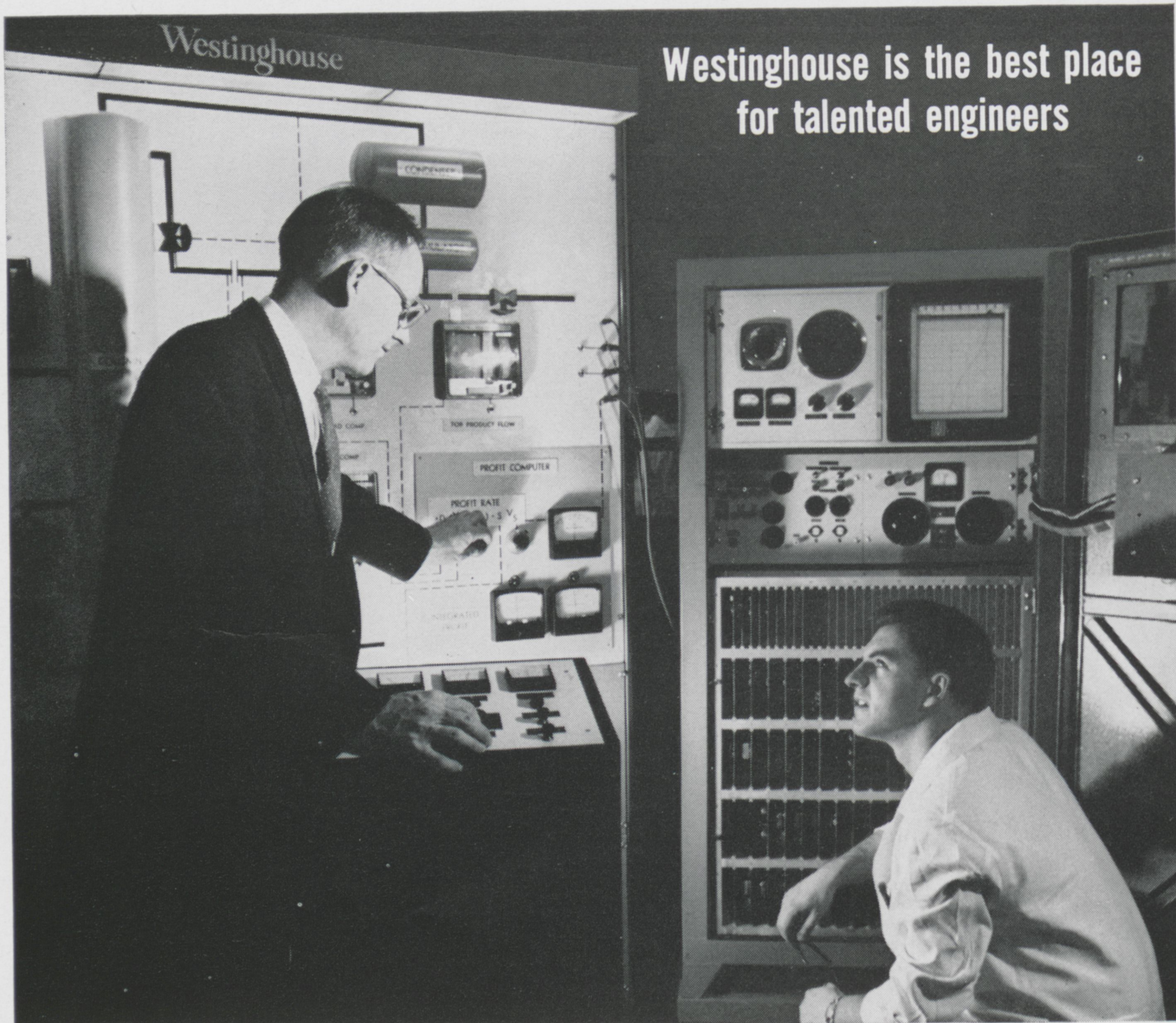
**WHAT MAKES A COMPANY A GOOD CITIZEN?** One way to judge is by a company's economic effect on a community. Is it growing? Is it progressive? Will it provide opportunities for advancement? For the five years from 1954 to 1959, Standard spent \$1.4 billion on new facilities. Expenditures like these help to create new opportunities.

**STANDARD OIL COMPANY**



THE SIGN OF PROGRESS...  
THROUGH RESEARCH





Westinghouse is the best place  
for talented engineers

Engineer C. A. Booker and Technician L. G. Szarmach run an optimizing control test to achieve the highest profit rate for a simulated chemical distillation process.

## The New Products Laboratories help the Westinghouse engineer verify his theories

The engineer at Westinghouse can rely on the New Products Laboratories to help verify his theories. These laboratories at Cheswick, Pennsylvania, contain a group of advanced engineering development personnel who can converse in both the language of the fundamental scientist and of the designer.

These laboratories, through their diverse scientific activities, aid the work of engineers in all departments of the corporation and provide a means to convert theory into proven equipment. Among the many projects which have come into being through the New Products Laboratories are thermoelectric power generation, thermoelectric refrigeration, ultrasonic cleaning, and OPCON, a new concept in process control systems. OPCON (optimizing control) has proven successful in the chemical processes industry. Other possible applications include the petroleum, steel and paper industries.

The young engineer at Westinghouse isn't expected

to know all the answers . . . our work is often too advanced for that. Instead, his abilities and knowledge are backed up by specialists like those in the New Products Laboratories.

If you have ambition and ability, you can have a rewarding career with Westinghouse. Our broad product line, decentralized operations, and diversified technical assistance provide hundreds of challenging opportunities for talented engineers.

Want more information? Write today to Mr. L. H. Noggle, Westinghouse Educational Department, Ardmore and Brinton Roads, Pittsburgh 21, Pennsylvania.

YOU CAN BE SURE...IF IT'S

# Westinghouse





# men on the move

*take the right steps to  
launch their engineering career*

## **CONVAIR-POMONA...in Southern California**

offers NEW PROGRAMS with excellent opportunities today for Engineers. Convair-Pomona, created the Army's newest weapon, REDEYE, Shoulder Fired MISSILE and developed the Navy's ADVANCED TERRIER and TARTAR MISSILES and many other, still highly classified programs.

Positions are open for experienced and inexperienced Bachelors, Masters and Doctorates in the fields of Electronics, Aeronautics, Mechanics and Physics.

**ADVANCEMENT** opportunities are provided for the competent engineer as rapidly as his capabilities will permit in currently expanding programs.

**PROFESSIONAL ENVIRONMENT**—CONVAIR-POMONA'S facility is of modern design and completely air-conditioned. You will work with men who have pioneered the missile industry and are now engaged in some of the most advanced programs in existence.

**ADVANCED EDUCATION**—Tuition refund is provided for graduate work in the field of your specialty. Company sponsored in-plant training courses offer the Engineer the finest of educational opportunities.

**CALIFORNIA LIVING**—Suburban Pomona offers lower living costs and moderate priced property, unexcelled recreational facilities, freedom from rush hour traffic and the ultimate in comfort and gracious living.

Contact your placement office immediately to assure yourself of a campus interview with Convair-Pomona.

If personal interview is not possible send resume and grade transcript to B. L. Dixon, Engineering Personnel Administrator, Dept. CM-515, Pomona, California.

## **CONVAIR/POMONA**

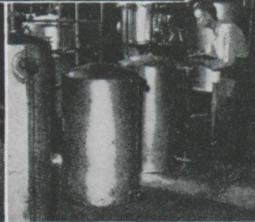
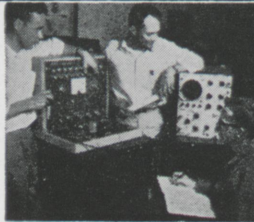
Convair Division of

## **GENERAL DYNAMICS CORPORATION**

Pomona, California



# ROSE



## ROSE POLYTECHNIC INSTITUTE

TERRE HAUTE, INDIANA

HIGH SCHOOL GRADUATES OF 1960

You are cordially invited to visit Rose Polytechnic Institute where you can earn a degree in:

CHEMICAL ENGINEERING  
ELECTRICAL ENGINEERING  
MECHANICAL ENGINEERING  
CIVIL ENGINEERING  
MATHEMATICS  
PHYSICS  
CHEMISTRY

*Office*  
OF ADMISSIONS

ROSE POLYTECHNIC  
INSTITUTE  
TERRE HAUTE, INDIANA





## *Good Citizens?*

This being election year, many students will be voting for the first time. During the next few months we will be actively studying domestic and foreign policy, farm price supports, national defense and other political areas worthy of our interest. It might be interesting to note that many of these areas which we view with alarm have resulted from public indifference to such matters. It is said that good citizenship begins in the home. Then it should be a good policy for us to develop these qualities while we are still in school.

Of course Rose was not founded to develop Congressmen or politicians; but to train young men for leadership in industry and in the civic and social life of his community and his country. However, it is often difficult to uncover interest of Rose students in their own government. On many occasions, student activities fail for lack of student interest. Attendance at student meetings and convocations is downright disgusting. Important matters demanding careful consideration of a student groups' entire membership are casually tossed to the shoulders of its officers.

Officers of student organizations seldom hold positions of responsibility due to favoritism or personal ambition. These men simply recognize the true value of the organization and enjoy the work of carrying out its objectives. With the spring graduation, many "Old Faithfuls" will be leaving us. Left behind will be many important tasks and positions of responsibility which will have to be handled by new and willing men.

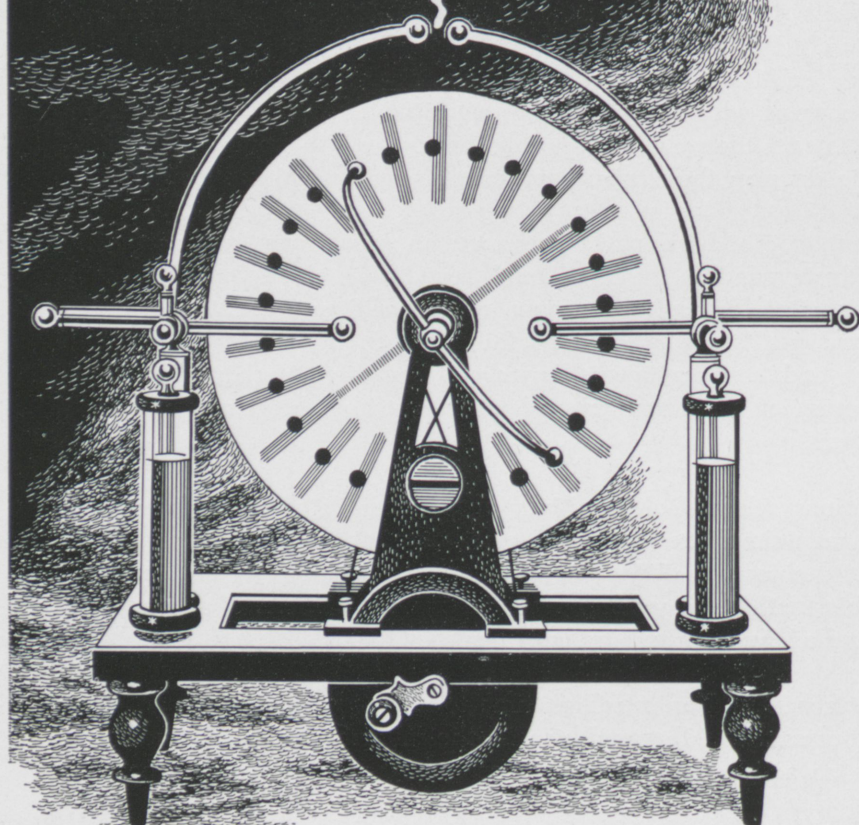
This summer, first time voters will find an excellent time to investigate political parties and their candidates. If this enthusiasm could extend on into the following fall and student activities, they could all become as active and worthwhile as some have been in the past.

The success or failure of a student organization—or of a government—falls solidly upon the interest and determination of the persons comprising that group. Let's all endeavor to become better citizens both at school and at home.

*D.A.T.*



# what is charge?



Earth's attraction for a lightning bolt?

+ or -, which is up?

A resonant phenomenon?

A singularity in a field?

What is the nuclear "glue" for like charges?

A better comprehension of charge is important to Allison because energy conversion is our business and charge is one keystone for this conversion work. Thus we have a deep and continuing interest in electrons, protons, positrons, neutrons, neutrinos—charge in all its forms.

In its investigations, Allison calls upon the capabilities within General Motors Corporation and its Divisions, as well as the specialized talents of other individuals and organizations. By applying this systems engineering concept to new research projects, we increase the effectiveness with which we accomplish our mission—exploring the needs of advanced propulsion and weapons systems.

Energy conversion is our business



Want to know about YOUR opportunities on the Allison Engineering Team? Write: Mr. R. C. Smith, College Relations, Personnel Dept.

**ALLISON**

Division of General Motors,  
Indianapolis, Indiana





*From the*

## PRESIDENT'S DESK

As I am writing this column, the first practical results from space exploration and satellites are appearing over the horizon. Tiros I is taking around-the-world pictures every ninety-nine minutes. These pictures are designed to study the cloud pattern and thus to learn more about the weather.

Whether or not knowing more about the weather patterns will teach men how to "control" the weather is immaterial. The practical results will come from knowing more about the weather and exactly when and where storms will hit. Between February 23, 1960 and March 23, 1960 many lives and millions of dollars of revenue could have been saved in the United States if the paths of the storms could have been pin-pointed accurately.

New jobs for engineers will open up as the result of the establishment of a reliable network of weather satellites. Traffic will be re-routed to minimize weather delays. Raw materials will be stockpiled better to avoid plant shutdowns. Retail establishments will control stocks of such items as umbrellas for a rainy spell or air conditioners for hot summers. In short, engineering planning will take the place of chance.

This brings us again to the question of technological obsolescence. Today a person's academic education no longer serves him adequately through his active career. This is true whether that person was educated as an engineer or anything else. His knowledge and thus his education must be renewed continually or the individual will run the danger of becoming obsolete, two to three times in his active career. Those who completed their academic education prior to 1935 would have become technologically obsolete in August, 1945 unless their education had been renewed to include an understanding of atomic energy and the processes of fission. Now it appears that fusion is the better and more desirable method of utilizing atomic energy. Those who failed to keep abreast of the changes from 1945 to date are again in danger of technological obsolescence.

Those who did not keep abreast of the progress in rocketry and radio-astronomy suddenly realized the danger of technological obsolescence on October 4, 1957. Continuing education by a larger segment of the population might have softened that blow to the pride of the United States.

If Rose can inculcate in its students the understanding that engineering is a growing, dynamic profession and that continual study after graduation is essential, Rose will have accomplished its most important objective. I hope that no Rose graduate will ever join the ranks of the technologically obsolete.

Ralph A. Morgen  
President



# PROFESSIONALISM

By Ed Goheen, sr., c.e.

A profession is, according to Webster's dictionary, an occupation requiring advanced training in some liberal art or science, and usually involving mental rather than manual work. A professional is a person engaged in, or worthy of the high stands of a profession. Professionalism is a noun meaning professional quality or status.

Engineering can be considered a profession since it has the following characteristics: (1) It renders a specialized service based upon advanced specialized knowledge and skill and deals with its problems primarily on an intellectual plane rather than on a physical or manual-labor plane. (2) It is charged with a substantial degree of public obligation, by virtue of its possession of specialized knowledge. (3) It performs its services to a substantial degree in the general public interest. (4) It enjoys a common heritage of knowledge, skill, and status to the cumulative store of which professional men contribute through their individual and collective efforts.

Today there is a movement underway, backed by several engineering groups, to gain professional status for engineers.

This professionalism movement is opposed by an increased interest of the industrial unions to organize engineers in a union or some sort of collective bargaining agency, both

of which are very non-professional in nature, as will be discussed later.

The outcome of the professional movement will affect engineering students, as the future's engineers, much more than it will those engineers now practicing, and we are the only ones who can further this movement.

Although engineering seems to meet the requirements of a profession it will never truly be a profession until the public recognizes it as such. Usually, getting the public to recognize anything which it previously has not accepted is a very slow process, so the backers of the professional movement have in mind as their ultimate goal a professional association similar to the American Medical Association, hoping that the public will be quicker to accept an organized group than it would a group of individuals.

Legally and politically engineering is already widely accepted as a profession. Beginning with Wyoming in 1907, public registration laws (any engineer engaged in work directly connected with public property, health, or safety must be registered with the state) have been adopted by all the states and territories of the union and by all the mainland Canadian provinces. Various national statutes recognize engineering as a profession and likewise, the judiciary has long recognized engineering as a profession through many legal decisions.

There are some unions, notably the A.F.L.-C.I.O., which deny that engineering is a profession. They imply that an engineer is merely an employee doing a job like a machinist who went to a trade school, and requires experience to perform his job satisfactorily. The A.F.L.-C.I.O. further suggests that engineers need someone trained in bargaining with management to speak for them in regard to improving their working conditions and gaining salary increases and other benefits not now available to them. The A.F.L. organized an engineering union in 1918 and today it has almost 6000 members. The U.A.W. represents nearly half of the engineers at Chrysler Corp., and a large percentage in other motor plants, except Ford and General Motors. Engineers also have a broad representation in C.I.O.'s steel and electrical workers. Furthermore, the A.F.L.-C.I.O. states that it eventually wants to organize all engineers and technical workers.

Actually there are several other engineering unions in existence today which are independent of A.F.L.-C.I.O. While most of them are local organizations within their particular company, there are a few which take in engineers in several different industries. The largest of the latter type is the Engineers and Scientists of America which has been in existence since 1952 and includes approximately 10% of



this nation's 400,000 engineers. This union is made up of engineers from Boeing, Lockheed, Minneapolis-Honeywell, Western Electric, R.C.A., Sperry Gyroscope, and several other companies, each of which employ several thousand engineers. Results have been achieved by these unions, although they prefer to be thought of as professional associations rather than unions. They have even, on occasion, resorted to strike tactics to gain their objectives.

It is readily apparent that if not affiliation with, then at least a favorable tie with the large industrial unions is necessary for this type of tactics to be successful.

The basic objective of a union is to raise the standard of living of its members through collective bargaining and any other method available to it.

On the other hand, the basic aim in the profession of engineering is not so much to raise the standard of living of engineers as it is to raise the standard of living of all peoples. Most engineers do not approve of the seniority system of advancement, but would rather be free to advance by their own individual initiative, industry, and talent. Also, most engineers are opposed to the system of rigidly limited salary schedules or any system which does not reward them financially in proportion to their merit. For after all, isn't the system of compensation and advancement based on diligent effort, ability, and output a lot more like the capitalism of our forefathers than the seniority and fixed salary—regardless-of-output system. Engineers desire for themselves a professional basis of employment; they want to be free to put in over-time without stint at a critical stage in a development or construction project and later to be able to take time off to relax, without the tyranny of the time clock system. Engineers want to see the gains from technology shared by everyone in the form of more, better, and cheaper goods and services and not see the prices kept up by continuous demands of higher pay

and insistence on using more costly production methods (an example being, the employment of several men to "operate" a completely automatic machine) such as unions seem to advocate.

Thus it is that, although the engineer in an office with hundreds of others feels that collective bargaining is the only way he can be recognized by the company, which is the case of most of the engineers now in unions, this step is not in the best interests of professional engineering.

However, federal laws guarantee to industrial employees the right of collective bargaining through representation of their own choosing. These laws do not make collective bargaining mandatory nor do they prescribe the agencies by which the collective negotiations are to be conducted, but they do encourage the practice, and the unattached individual is likely to find himself at a disadvantage or without protection when others insist on doing his bargaining for him.

To combat this, some of the independent engineering associations now organized attempt to carry on this collective bargaining on a high plane, eliminating such things as promotion on the basis of seniority, closed shops, shop steward, etc., which is somewhat more desirable than the tactics of an industrial union.

The national engineering societies refuse to engage in collective bargaining as a matter of principle and also, because the law forbids any joint organization of employers, managers, and employees to act as a bargaining agency. However, the A. S. C. E. recently conducted a poll of its members and only 25% of the 17,000 who responded were in favor of collective bargaining for engineers by any agency. Similar results were obtained by an A. S. M. E. poll on the issue.

All of this discussion leads one to the conclusion that a very internally strong organization such as the American Medical Association might be in order for engineers. There is now a movement in that direction

by the Engineers Council for Professional Development and the National Society of Professional Engineers, but for such an organization to be effective it must have 100% backing by the engineers. Everyone wishing to practice engineering would be required to register, a schedule of minimum fees (now in limited service) could be adopted by all the engineers, the present code of ethics could be enforced by internal pressure from the association, and all of the further requirements of a profession could be completely fulfilled. It is interesting to note that the engineers' code of ethics, which is much like that of the A. M. A., forbids competition on the basis of price between engineers but that 10 states now require that engineering services for public work be selected on the basis of sealed bids.

Should a professional engineering association be established it would derive its power from the fact that the public would be brought to recognize that only members of the association are competent to perform engineering work. Any member engaging in deceit, fraud, unsound practice, or any other misdemeanor would be faced with expulsion from the association and thus, a loss of practice.

Before a professional association is formed, the individual engineer can help engineering be accepted as a profession by the public if he will conduct himself as a professional man. After a professional association is formed the individual engineer will still have to conduct himself as a professional man in order to be worthy of being a member of the association.

There are certain steps to be taken in the development of a professional man and these are as follows:

1. *Registration.* The purpose of registration is, as stated in effect in the preambles of all laws so far enacted, "to safeguard life, health, and property, and to promote public welfare." Registration does this by permitting only competent and reliable men to work on projects which directly affect the public.

*(Continued on page 28)*



# POWER SOURCES

By Fred Wright, soph., m.e.

Until a few centuries ago man depended entirely upon his human strength, animals, water and wind for the main source of power. If these conditions were to exist today, we can see that men and women working at the limits of human strength could produce only enough materials for mere existence.

When the steam engine was developed in the eighteenth century, an opportunity was offered man to exchange his muscles as the chief source of power for enormous amounts of energy stored up in coal, gas, and oil deposits. An industrial civilization based primarily on these fuels cannot continue indefinitely because the reserves of fossil fuels are necessarily limited. For this reason we can see the importance of developing sources of power if our standard of living is to continue.

The energy in all our food and fuel comes from the sun. Our foods are produced annually but our fuels were produced millions of years ago and were preserved in the form of coal, oil, and gas. These fuels are basically irreplaceable, yet we are using them at a very rapid rate.

One source of continuing power is the sun's radiation which will be available as long as man exists. The total solar heat falling on the land areas of the world is far greater than the energy required for any

conceivable energy-consuming civilization. In the United States the energy consumption for all purposes is about 150,000 kilocalories or 174 kilowatt hours of heat per person per day. But the total heat and light received from the sun by the United States is of the order of 270 million kilocalories or 313,000 kilowatt hours of heat per person per day. In the past, much more time and money has been spent on the development of atomic energy than on solar energy. Considering the vast amount of energy that is received from the sun, we can see the importance of developing solar energy.

Solar energy has the advantage that it is widely distributed and is essentially free and it has no harmful by-products. However, one of the greatest handicaps of solar energy is its discontinuous operation. In electricity generation, for instance, there must be some source of power when the sun is not shining. Another handicap peculiar to solar energy is the large area required to collect the solar heat. As a result, large investments are required which make methods of power production currently in use more economical than production of power by solar energy. Solar energy can be converted into electricity through thermopiles of dissimilar metals, but the greatest hope of utilizing solar energy is through the use of photovoltaic cells and newly developed types of tran-

sistors in which the sun's radiation is converted directly into electrical energy. Unless the cost of conventional fuels become much higher than it is today, it seems unlikely that large solar-power plants will become economical enough to use in the near future.

One cannot discuss sources of power adequately without mentioning nuclear power. Almost as suddenly as nuclear fission burst upon the world at Hiroshima in 1945, its science and technology made their impact at Geneva ten years later. President Eisenhower's proposal in December of 1953 that the United Nations sponsor the application of nuclear energy to the arts of peace was meant to end the military era, to reduce secrecy, to increase international cooperation, and to encourage broad economic development of the new resource. But the conference actually did much more. It revealed how grave is the power shortage throughout most of the world, and how enormous are the world's nuclear fuel resources as compared with those of the conventional fuels.

Our present material prosperity is directly dependent on our supply of fuels which provide energy to operate our machines. The world will not suffer a shortage of fuel in the near future, but the rapidly increasing population and increasing demands for electricity and other forms of power will be a problem to man eventually.



# THE INDETERMINACY PRINCIPLE

By Bob Checkley, jr., physics.

The goal of the scientist is complete knowledge of the structure, the behavior, and the reasons for this behavior of the world in which he lives. But is this possible? Based wholly on experience man has developed two basic theses that drive him in his study of the world: The world is an order; man can find the guiding motif in this order.

Whether or not these assumptions are valid is the topic of this article. The study of the atom and its behavior has led to the proposal of a revolutionary theory regarding the partitioning of energy. The theory is Plank's Quantum Theory; the basic concept of the theory being that energy is basically quantized. That is, it is divided into packages known as quanta. The energy of each of these packages or photons is given by the equation

$$\text{Energy} = h\nu$$

where  $\nu$  is the wave frequency of the packet of energy and  $h$  is a universal constant known as Plank's Constant, which appears in all quantum relations.

The Heisenberg Indeterminacy Principle stems directly from this quantum theory and from the quantum mechanics, which arise from this theory. There are two parts of the Indeterminacy Principle. One part is concerned with the simultaneous measurement of the momentum and position of a particle. The principle states that experiment cannot fix these to an unlimited precision, but that the momentum  $p_x$  in a single direction is determinable only to within a range  $\Delta p_x$  and the position  $x$  in a single

direction within a range  $\Delta x$ , where  $h$  is again Plank's constant.  $\Delta p_x \Delta x > h$

This inequality can be extended from the stated one dimensional space to a third dimensional space with three components of momentum. When this is done we have

$$\Delta p_x \Delta x \Delta p_y \Delta y \Delta p_z \Delta z \geq h^3$$

We could devise an experiment where the determination of  $p_x$  and  $x$  was poorer than  $\Delta p_x \Delta x = h$ , but the Indeterminacy Principle states that we can do no better than this. Note that here is no individual restriction placed on  $\Delta p_x$  and  $\Delta x$  but rather, the restriction is based on their product. We could therefore determine  $p_x$  to any desired degree of accuracy, but in so doing we would have to settle for practically no knowledge of the position  $x$  of the particle. Note also that there is no restriction on products such as  $\Delta p_x \Delta y$ .

The other part of the Indeterminacy Principle is concerned with the simultaneous measurement of the energy  $E$  and the time  $t$ . For example,  $E$  might be the energy of a photon and  $t$  the time it was emitted. The principle states that,

$$\Delta E \Delta t \geq h$$

Again there is no restriction placed on the accuracy with which  $E$  or  $t$  can be determined individually, but on the product  $\Delta E \Delta t$ .

The Indeterminacy Principle is quite foreign to classical mechanics, which recognizes no fundamental limitations with all quantum theories and phenomena, Plank's constant appears here.

Let us now examine our belief

that man can discover the motif of the order in the world, in the light of the Indeterminacy Principle. Man's only source of knowledge is that which is obtained through observation and also by instruments which he has constructed to observe for him. From these observations he makes measurements, and by comparing measurements he is able to determine and even predict the behavior of things. All of man's studies stem from this, that is, they express blind faith in the law of cause and effect. The statement of this law is as follows: Given the effect the cause can be determined, and given the cause the effect can be predicted. This is an empirical law resulting from centuries of man's experience.

Applying the Indeterminacy Principle to this law renders the law completely meaningless. According to the principle we are unable, by our measurements, to determine precisely the effect, and therefore the hypothesis of law of cause and effect (given the effect) has been violated. Thus we cannot apply this law, and we are deprived of our basic premise.

From the preceding discussion we can see that there is a limiting knowledge beyond which man will be unable to penetrate. This statement is possibly misleading. It could be better said in this way. There is a limiting point beyond which further knowledge becomes meaningless.

What effect will the realization of this fact, the realization that we

(Continued on page 28)



# Campus Survey

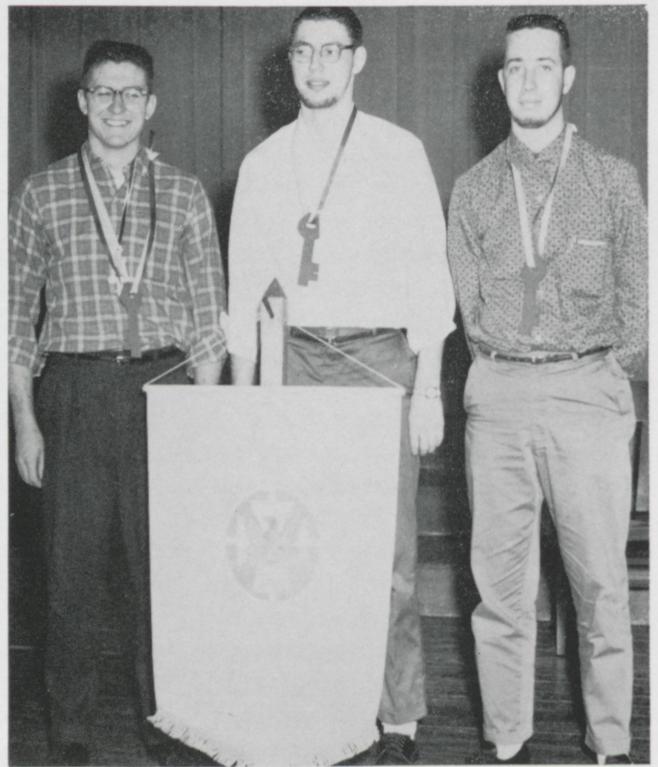
By Don Bonness, soph., e.e.



John Eagan and Bill Niswonger are selected as winners in the St. Pat's beard-growing contest.



The DePauw Players stage "The Glass Managerie" for the Rose Student Body.

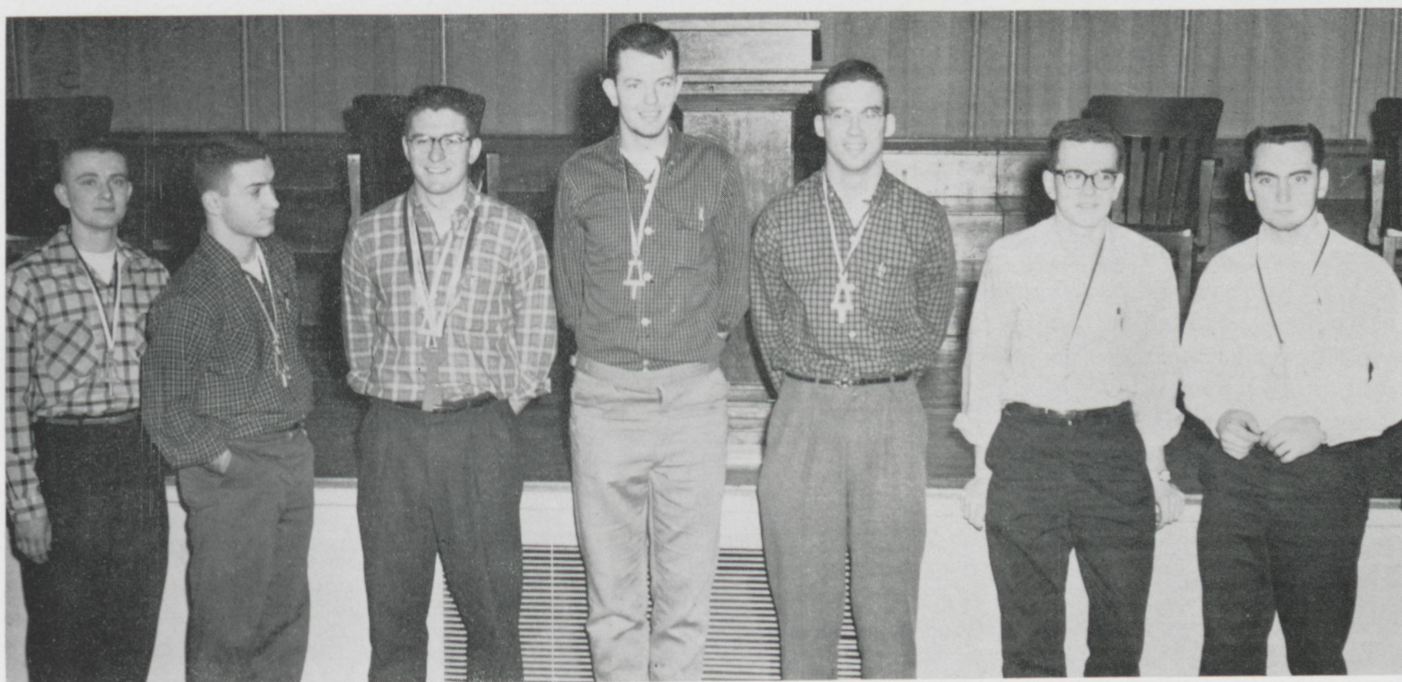


New Blue Key pledges are Don Dekker, Bill Yochum and Ron Staggs.





Left: Bearded Irishmen swing to the music of Dave Baker during the St. Pat's Dance. Below: Men tapped at the spring honors convocation are; Jon Stiles, Bob Checkley, Don Dekker, John Ray, Louis Roehm, Don Niedringhouse, and Charles Smith.



Here we are well into the second semester, a semester commonly plagued by an epidemic of spring fever. Spring fever has been known (by the writer) to strike as early as the end of March and of course become more acute with time. Our beautiful campus seems to be a prime carrier of this sometimes mortal affliction. This year the weather, at least to this date seems

to be on our side. Effects of the ailment are loss of ambition, low grades, and love sickness, while the only cure is will-power.

#### **RUSH AT ROSE**

Rush week-end, February 20th and 21st, is over for another year. All fraternity men heave a sigh of relief and hit the neglected books to catch up in their studies.

The present deferred rush system

at Rose seems to be an excellent system for all involved. Although it concentrates the rush into a single week-end and a week (or perhaps two) of preparation for the parties, the deferred rush cuts distraction from studies to a minimum. Not only is the system advantageous for scholastic reasons but it also gives the fraternity men more time to observe the freshmen in order to



better choose the men who will be their brothers. This works the other way too; the rushees are given a better look at the men with whom they will choose to live.

Briefly the rush at Rose works as follows: Men having attended Rose for one semester and who are not on scholastic probation are eligible for rush. Fraternity men are not allowed to "talk fraternity" to them until the two hour parties during rush week-end and then not again until after eight o'clock the following Monday morning, at which time the fraternities and most of the rushees turn in their preferences. After this, rush is open for fraternities that have not reached their quotas. Twice during the first semester "get acquainted" parties are held, as the name suggests, for the fraternity men to become acquainted with the freshmen and vice versa—there is no fraternity at these parties. Perhaps there are a few kinks in the system, but basically it seems to be very functional.

Due to the exceptionally fine group of rushees, this rush was very successful for all four fraternities at Rose, Alpha Tau Omega, Lambda Chi Alpha, Sigma Nu, and Theta Xi. To this date 56 Rose students have pledged the four national social fraternities. Since no chapter has yet filled its quota of twenty-two, all fraternities have the privilege of open rush.

Congratulations to all the new pledges and to the four fraternities.

### CONCERT BY ST. MARY'S AND ROSE

On March 3, the Saint Mary-of-the-Woods Chorale and the Rose Glee Club combined to present a program consisting of a wide variety of musical arrangements.

The Rose Glee Club, thirty-three strong, took the stage first, singing four numbers which included "Aura Lee" and the traditional "There is Nothin' Like a Dame". Then replacing the partially bearded crew (bearded for the St. Pat's dance) was a much prettier group of forty-five girls, all garbed in white blazers.

The girls' chorale also sang four songs including "The Snow" and "Almost Like Being in Love". In conclusion the two groups combined their talents in the singing of three songs.

This concert had been preceded by a similar one at the St. Mary's Campus; perhaps this exchange of talent will cement favorable social relations between the two student bodies.

### CAPE CANAVERAL

The week of Washington's birthday is celebrated as Engineers' Week. The lecture of Colonel H. L. Haberstadt, commander of 6555 Missile Group on February 25 seemed appropriate for the event.

Colonel Haberstadt, a Rose graduate of '37 described, in general terms, the guided missile program of the Defense Department showing color slides and movies to illustrate the ups and downs of missile development.

Colonel Haberstadt's lecture was mainly confined to the workings of the Atlantic Missile Range, which is our main testing lab for guided missiles. Firing pads of the range are located at Cape Canaveral while the workings of the range, which extends 5,500 miles into the South Atlantic, include observation stations on four small islands, the last of which is Ascension Island.

The importance of capable engineers in the development of our missile program was stressed by the former Rose student.

### JUNIOR MIXER

A very successful mixer was sponsored by the Rose Junior class following the Blackburn basketball game of February 27th. The mixer, which was to raise money for the Junior Prom proved that raising funds isn't too painful. Necessary feminine components of the mixer were provided by the Sparkettes from Indiana State, who performed at the basketball game, and the girls from St. Mary's. Combining the girls with the music provided by records seemed to be the right formula for a good time for all present.

### SPRING HONORS CONVOCATION

Twice a year the men who excel in scholarship and in leadership are honored by the student body at the Spring Honors Convocation. Included in the convocation of March 10 were the awarding of honor keys for outstanding work in extra-curricular activities, tappings for Blue Key National Honorary Fraternity and Tau Beta Pi National Honorary Engineering Fraternity. Also the intra-fraternity scholarship trophy was presented to Lambda Chi Alpha for a 2.85 average index for last semester.

Blue Key, which represents leadership ability, tapped by vigorous back slapping the following men: Don Dekker, Ron Staggs, and Bill Yochum.

Tapped for Tau Beta Pi for scholastic excellence, were the following: Louis Roehm, Don Dekker, Jon Stiles, Don Neidringhaus, John Ray, Charlie Smith, Bob Checkley, and Larry Hartley.

Dr. Morgen, our president, concluded the convo with a thought-provoking speech in which he analyzed the reasons for attending Rose. He related that the function of Rose is the turning out of good engineers, not just capable technicians. A good engineer must be able to design and create new products for mankind, but his abilities do not stop along technical lines. Not only must the engineer of this day and age be technically competent, but he must have the capacity to effectively sell his ideas. He must be a well-rounded individual who has the ability to communicate well, not only by speaking but also through written reports and by reading the reports of others. Hand-in-hand with selling one's ideas, says Dr. Morgan, goes selling oneself. Good manners, good appearance, and good grammar are the essentials for selling oneself.

Summing up, the essentials of a modern engineer are technical competency, leadership, the ability to communicate well, and good manners and appearance.



# COLLEGE VACUUM

By Fred Wernicke, sr., e.e.

It is interesting to compare a 1960 dictionary to one published in 1923. Many words have been added, new definitions are becoming standard, and many slang words have now taken their place as a permanent part of our language. In another ten years many words will be discarded, many definitions will be obsolete, and more words and meanings will become a part of American's everyday speech. One term that may appear in our 1970 dictionaries is "college vacuum." I have never heard the term used much, but there has been a great deal of discussion concerning its meaning and effect on our culture.

Perhaps before going on a derivation of "college vacuum," is in order. Everyone should know what college means; it is a school where people go to get educated, where students with common interests and aptitudes come together to take a course of study, whether it be engineering, cooking, teaching, or farming. Vacuum may be a little more difficult to define. Personally I like to say a vacuum is nothing. The Merriam-Webster Dictionary gives a more sophisticated if not closer by mentioning a space completely devoid of matter or a gap. It certainly doesn't seem promising to put these two words together, but if we do a term is born that describes quite perfectly a situation that is present in many if not all of our present institutes of higher

learning today; a term that tragically may soon become a part of our everyday writings and language. College vacuum—a place where people with common interests, abilities and goals are in a gap, are in their own private world. Perhaps the scoffing term used by psychologists and many other people, ivory tower, is not as humorous and should not be taken as lightly as it seems to be.

By now many of you are probably getting upset, Rose is a wonderful school, I am very proud to have been a part of its life for four years, and I am sure that the best technical education available can be found here. But I am not talking about a gap in our technical knowledge; to illustrate what I am referring to let me use the same technique found in a recent Time advertisement. Can you discuss these people with someone, do you know who they are?

- 1.) Chizuko Yoshido
- 2.) Doctor Edward Teller
- 3.) Edward Steichen
- 4.) Hal Holbrook

Perhaps this article will mean more to you if I do tell you who these people are. Miss Yoshido is a foremost Japanese artist whose contemporary technique is starting new art trends in Japan. Doctor Edward Teller is one of the world's top-ranking atomic physicists and is the director of the University of California's Radiation Laboratory. Ed-

ward Steichen is the dean of American photographers and the man responsible for "The Family Man" exhibition. Hal Holbrook is the young actor whose tremendous interpretation and re-creation of Mark Twain is the hit of the New York theatre.

By now someone is saying "who cares, at least I know what an atom is and what a capacitor is." Talk to your instructors, ask them how important they feel such knowledge is. And while you are talking to them get their views on a few other things; such as how important can religion be to a college student or do they feel that many students can get more out of college life than they do?

Do you know what is happening in the outside world? Are you in a college vacuum? This term can actually be extended to our technical training. Do you know what is happening in your own field? Are you taking time to read the professional publications that can keep you up to date? Doing this can be as important to you in your career as technical competence.

However getting back onto campus, it seems that many of us are also in a gap as far as social graces go, too. Perhaps the famous words "professional approach" can even be used here. The close relationship between students and faculty that we have at Rose is invaluable, but

(Continued on page 30)



# Fraternity

## SIGMA NU

It appears to be time once again to explore the events taking place at one of the four Rose Polytechnic social fraternities. Please keep in mind there will be no effort to place any said event in order, either chronologically or order of importance.

The annual Sigma Nu State Day Dance was held this year in Indianapolis, Indiana at the Westchester Country Club on March 12. Very enjoyable music by "The King Pipes" and "Sir Conolly and His Melody Men" was danced to, aided by the enchanting country club atmosphere.

Mrs. Shirley Raquet honored Beta Upsilon Chapter as their candidate for Sigma Nu Sweetheart. Dan Maffucci was chosen to serve on the Court of Attendants. Beta Upsilon was very proud of their response to the affair with over thirty brothers and their dates enjoying the gala evening.

Dave Herrington and Jim Kwastica were recently elected co-house managers. Statisticians predict house fines to exceed \$500.00 by mid-May at the current rate of exchange. Joking aside, congratulations to the new officers. They have the full cooperation of the chapter in their new jobs.

Congratulations are certainly in order for the Theta Xi men and their excellent inter-fraternity basketball season. With the same team back next year, we hope to help make it another good competitive season.

The chapter is quite proud of the

attendance and enthusiasm behind this year's team. Let's keep it up in all sports.

Best wishes are in order to Robert Jackson, Class of '59, and the former Miss Anita Walden, Rose Polytechnic librarian, on their recent marriage.

Until the next issue, happy six weeks grades!

Bob Carter

## THETA XI

After a successful and somewhat frantic rush weekend, Kappa Chapter is proud to have pledged fourteen men. They are Harry Berling, Indianapolis, Bill Edmonds, Terre Haute; Jake Hoffman, Metuchen, New Jersey; John Jervis, Zionsville; Steve Kern, Ashmore, Ill.; Larry Landis, Western Springs, Ill.; Larry Marshall, West Terre Haute; Jim McClure, Freelandville; Bob Murray, Crown Point; Lynn Roberts, Louisville, Ky.; Tom Rudolph, Boonville; Charles Spencer, Evansville; and Jim Summers, Bloomington. Newly elected president of the pledge class is Jim McClure. Pledge trainers are Bill Brummett and Bob Honegger. Rush co-chairmen Ralph Wardle and Bill Brummett are to be congratulated for their fine job.

The TX Tigers captured their third consecutive IF basketball championship, automatically retiring the traveling trophy. After ending regular season play in a first place tie with Sigma Nu, Coach Jack "Peon" Schreiner's squad roared to a 43-27 victory in the playoff game. The Tigers were paced by Brothers Lanning, Wardle,

Cunningham, McCardle, McGivern, and Andis, with pledges Summers and McClure adding the needed late season scoring punch. At the victory celebration Brother Larry Cunningham, who has played on all three championship teams, was named Most Valuable Player. The season was officially ended with the pledge-active game which saw the actives winning by a 51-44 count.

A date party was held at the house on March 5. Brother Larry Pitt led a song fest that was enthusiastic, although a little off key. On March 12 Kappa held a mixer with the Chi Omegas. Entertainment was furnished by pledge Lynn Roberts, who presented his Kentucky version of Romeo and Juliet.

Chapter congratulations go to Brother Don Niedringhaus, who was tapped for Tau Beta Pi at the recent Honors convocation.

Although there have been no new pinnings, two of the brothers are now "going steady"—Paul Blase with Miss Kathy Sharp, from St. Mary-of-the-Woods, and Chuck DeWeese with Miss Mary Anne Tyler, of Terre Haute.

Brother Jim Malone has been elected to the office of scholarship chairman. This position was recently sanctioned as a new office by the national organization.

Congratulations to Bernie Landsbaum, initiated into the Bonds of Theta Xi on March 14.

Bob McCardle

## ALPHA TAU OMEGA

This year's pledge class sure isn't wasting any time with their tricks.



# Notes

They started right off by removing the silverware from the dining room forcing us to bring out our reserve set. You should try eating with a gravy spoon and a butter knife sometime. Then while everyone was away at State Day, the pledges entered the empty Tau house and walked out with all the Military uniforms. Later, Monday afternoon, we were informed that our uniforms could be recovered up at Indiana State in Reeves Hall. Don't worry pledges, your time is coming soon.

Speaking of State Day, this year's event was a very successful one for Gamma Gamma. The first place trophy in scholarship went to Rose Poly with a ranking of fourth within the 120 ATO chapters in the country. The award for best attendance at State Day was also given to Rose Poly. This award was based on the number registered and the number of members attending the organizational meetings in the afternoon. To top it all the trophy for the singing contest was also awarded to Rose Poly. This gave Rose three of the five trophies awarded. Brother Bob Schukai received the Thomas Arkle Clark Award as the outstanding ATO in the State of Indiana and will represent Province XVII in the national competition.

New officers were recently elected at Gamma Gamma. The men and their office are: Dave Trueb, Worthy Master; Jon Stiles, Worthy Keeper of Exchequer; T. C. Copeland, Worthy Keeper of Annals; Jim Godwin, Worthy Scribe; Marshall Garino, Worthy Usher; Jerry

Heiniger, Worthy Sentinel; Dale Oexmann, Fiscal Assistant; and Bob Stark, pledge trainer. Ron Staggs continues his fine work as Worthy Chaplain.

At Rose's second semester Honors Convocation, several Taus were recognized for their honors. Congratulations go to Brother Louis Roehm and Brother Jon Stiles who were tapped for Tau Beta Pi and also to Brother Ron Staggs who was chosen for Blue Key.

Last but not least congratulations go to Bill and Ginny Johnson for the new addition to their family, Bill Johnson Jr. Also, official notice is herein given that Brother Jack Munro is no longer letter sweated.

Scott Herrin

## LAMB CHI ALPHA

We of Theta Kappa are very proud of our current pledge class. Our freshman pledges are: Bill Barone, Cincinnati, Ohio; Ed Blahut, Riverside, Illinois; Dick Daniels, Shaker Heights, Ohio; Dave Dumford, Fort Wayne; Max Goodwin, Paris, Illinois; Mike Hayes, Brazil; Jack Hobbs, Plainfield; Dennis Karwotka, Lansing, Illinois; Jeff Lew, Terre Haute; Bob Light, Lapel; Ken Miller, Orland, Illinois; George Newman, Richmond; Bill Nicewanger, Indianapolis; William Randolph, Edinburg; Ron Susemichel, Indianapolis; John Ulmer, Indianapolis; Cap Wetzell, Rocky River, Ohio; and Jim Young, Indianapolis. Congratulations, men!

Bill Brown, Ron Johnson, and John Tindall (pledged last semester) round out a strong pledge class

of 21 men. Look out actives!!

The Lambda Chi basketball team finally got rolling. In our last regularly scheduled game we defeated ATO to tie them for third place on the I.F. league. In the play-off game, the fly-boys again were victorious over the ATO squad to take third place. Congratulations to Theta Xi for capturing first place.

Brother Bruce McDowell was married to the former Rosemary Cox on February 24. Good luck!

Brother George Truster, Purdue University, and formerly from Rose, has pinned Miss Mary Jane Meek, I.S.T.C. Delta Gamma. This is George's second time around. Nice going Mary Jane, you trapped him again. Keep him this time (even if he isn't worth it!).

Theta Kappa's annual White Rose Dance was held April 2 at the scenic Allendale Country Club. From all the talk it seems it was one of the swingiest ever. Music was provided by that well-known local combo, the Monitors.

At the recent spring honors assembly, men of Theta Kappa received many awards. The chapter itself was the recipient of the I.F. scholarship trophy. The winning point ratio was 2.85. Don Dekker was honored by being tapped for both Tau Beta Pi and Blue Key. Joining Don as pledge brothers in Tau Beta Pi were Bob Checkley, Larry Hartley, and "Big John" Ray.

The Big Four is moving, held back only slightly by Steve Ban and Chuck Overbey.

Until then—

Bob Amos



# Research and Development

By Jon Modesitt, frosh

## REPRODUCING

The development of an amazing camera-projector and a projector-printer by Keuffel & Esser Company for use in drafting departments, and wherever desired, bring with them many firsts in the field of reproduction.

The new K&E Kecofax Projector-Printer is the first electro-static printer with the ability to produce reproductions of drawings up to the size of 34 by 48 inches. Once the projection size is set (which is done by moving the projector on over-

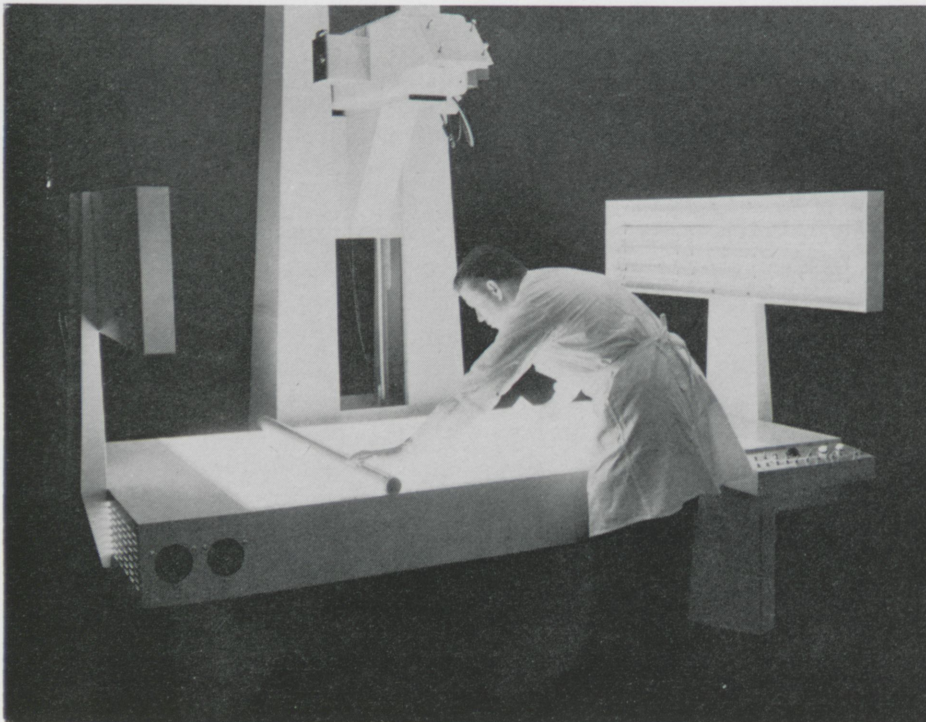
head rails) and the correct exposure time is set, the remainder of the operation is regulated by a push button. The Projector-Printer has the ability to produce up to 19 prints per negative at a rate of 40 seconds per print. The high speed of reproduction and sharpness of the black and white print is attained through the employment of a high intensity point source light. The printer utilizes a semi-conductor paper which is electrostatically charged by continually passing a coronabar across the surface of the paper.

After the paper is exposed to the image of the negative, it is passed into the toning chamber where the extracting of the image occurs. The paper is then exposed to controlled heat which fuses the image onto the paper. The paper is then automatically brought to the front of the machine and cut off for use.

The machine stands 7½ feet high, 14 feet long, and 5 feet wide. It is operated on 50 amperes of 115 V. A.C.

Keuffel & Esser Company has also placed on the market their new 105 mm/35mm Camera-Projector, which is the first projector with the ability to handle both 105 mm and 35 mm film. The new Camera-Projector utilizes the best features of the 105 mm and 35 mm system, plus taking advantage of many new concepts of design, making it capable of high quality negatives.

The new camera-projector utilizes a motorized projector magazine for instantaneous and automatic changing of negatives and a motorized filter for the optical system, thus making it the first to utilize both ideas, and making it the first completely motorized camera-projector on the market. It is also the first to utilize automatic control of point source light. Greater precision and finer quality negatives are attained through holding the 35 mm negatives under a vacuum during



New K&E Kecofax Projector-Printer.



exposure, another first. Controlled intensity of front and back lighting also tend toward sharper, clearer negatives. Another first is its ability to interrupt filming sequence to shoot and develop a single frame without losing additional film. The new camera-projector also utilizes the idea of overhead projecting and filming, and vacuum holds the original tracing and sensitized material to the subject holder.

These new developments have thus placed on the market the "K & E Kecofax Projector-Printer," and the "Micro-Master 105/35 mm Camera-Projector."

### 160 FOOT LENS TUNNEL

Kodak Research Laboratories are building a 160 foot lens tunnel into their new eight story Physics building now being constructed.

The long tunnel is to be used for research on lens and optical systems. It is necessary to have a tunnel of this length in order that a light source may be seen as a point. The tunnel is being constructed so as to keep sound and heat waves at a minimum, in order that delicate instruments will be free from disturbances. Heating and ventilation fans in the building are also being constructed so as to keep vibrations to a minimum.

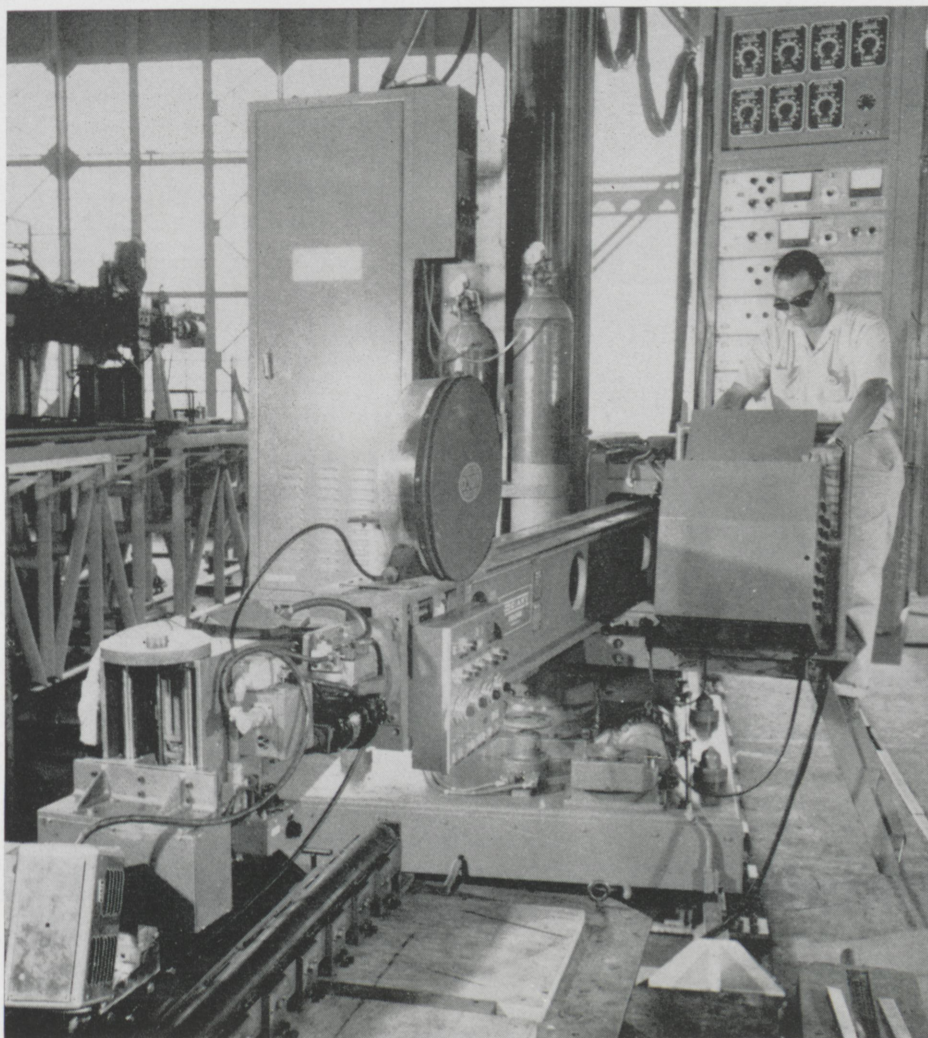
The building is also to contain an "optical penthouse" for research in long-distance photography and study of physical characteristics of the sun.

X-ray rooms insulated by 24 inch concrete walls are being built in the basement for use of high voltage X-ray equipment. Extreme care is being taken to eliminate radiation leaks by using utilities in these rooms supplied from underground.

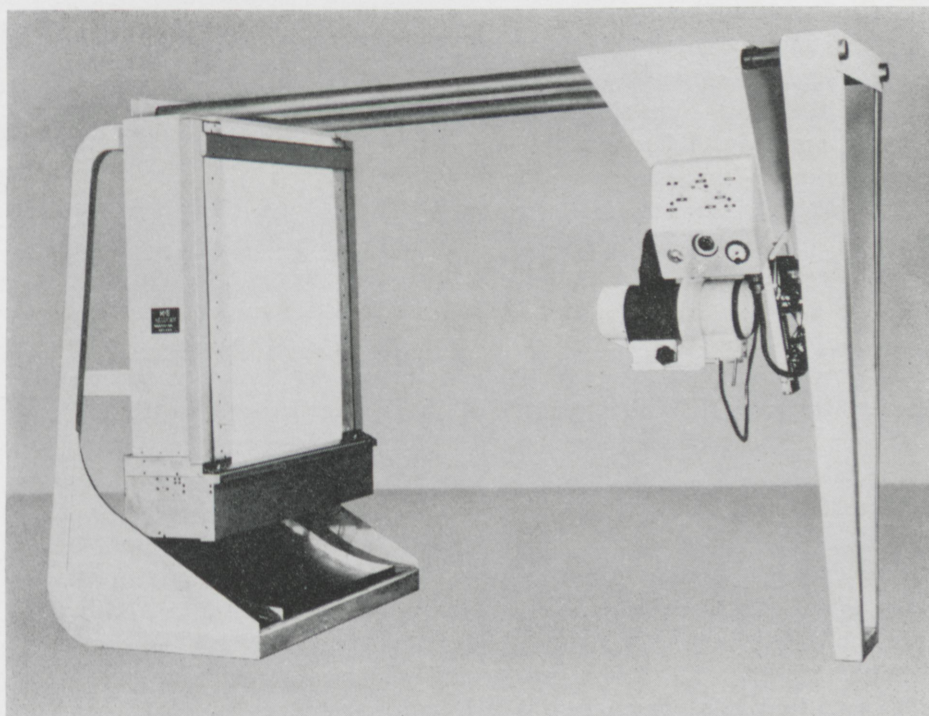
Three inch copper pipes have been sunk into bedrock outside the concrete footings, in order that perfect grounds for electronic studies will possess a minimum of error. These pipes are filled with treated water, and low resistance ground cable is run from the pipes to the laboratories.

The building is also reported to

*(Continued on page 32)*



Tungsten Inert Fusion Welder in action.



A versatile projector handles both 35mm and 105mm film.



# Alumni News

By Larry Shaffer, frosh

**ATTENTION:** Undecided Freshmen and wavering Sophomores. Here is an opportunity to get your questions answered and your doubts resolved. If you are undecided as to what course of study you will pursue during the next three or four years, here is an opportunity to meet with engineers now working in industry. Four Rose Poly alumni each working in a separate engineering field have volunteered their time for personal interviews with students who are interested. All four alumni are living in this immediate vicinity and are easily contacted. In this article and in the following issue, there will be a few words about each of the four alumni telling about their jobs, their accomplishments, a short quotation from each, and their addresses and telephone numbers.

At the same time the students are being offered this opportunity, we feel that the Rose alumni will be glad to hear about these four outstanding men as past students from their own classes. In this issue the two men presented are from the Chemical and Mechanical Engineering fields. Next issue there will be two alumni presented from the Civil and Electrical Engineering fields. Although we would like to recommend men to the students interested in the science fields, we feel this would be contrary to the purpose of this article, since Rose did not begin to offer science degrees until recently. Therefore, there are no Rose alumni in these fields available for consultation. We suggest that students interested in a personal interview with someone working in pure

science contact someone in the science department for a recommendation.

*Paul Benning*, a graduate of the class of 1947, resides in Terre Haute at 416 South 34th Street. Mr. Benning's telephone number is C-7778.

Paul Benning is a Chemical engineer who has been employed at Chas. Pfizer and Company for the past twelve years. He has worked as an engineer and at present is production manager. In this capacity, he supervises the production records of the plant's 500 employees, whose yearly payroll exceeds \$2,000,000. In reply to the question of why he chose to progress from basic engineering to management, he said that some people like to talk in terms of grams and "c.c." but he, however, preferred to talk in terms of tons and carloads. He said that the choice of engineering or manufacturing depends merely on the type of work the individual prefers.

Mr. Benning is also a family man and a civic worker. He is the local Kiwanis president, and in 1957 he was presented the local Junior of Commerce "Outstanding Young Man of the Year Award" for his community services. He is chairman of the local Institute of Chemical Engineers of the American Chemical Society. At present he is working for the National Defense Executive Reserve on the committee for the National Emergency Production of War Materials. Mr. Benning remains in close contact with Rose as a district alumni rep-

resentative.

Paul Benning said that engineering is the step to administration because the engineering education is so well rounded. His attitude toward Chemical engineering is "Chemical engineering, like the other specific engineering courses, is one which offers a challenge and future to the one who is interested. After the basic skills and techniques are thoroughly understood, the area of communications, both oral and written, as well as the ability to work with people become most important. Anyone interested in the what, the why, and the when of man's surroundings and having a deep desire to unravel nature's well held secrets, will make a success in the engineering courses."

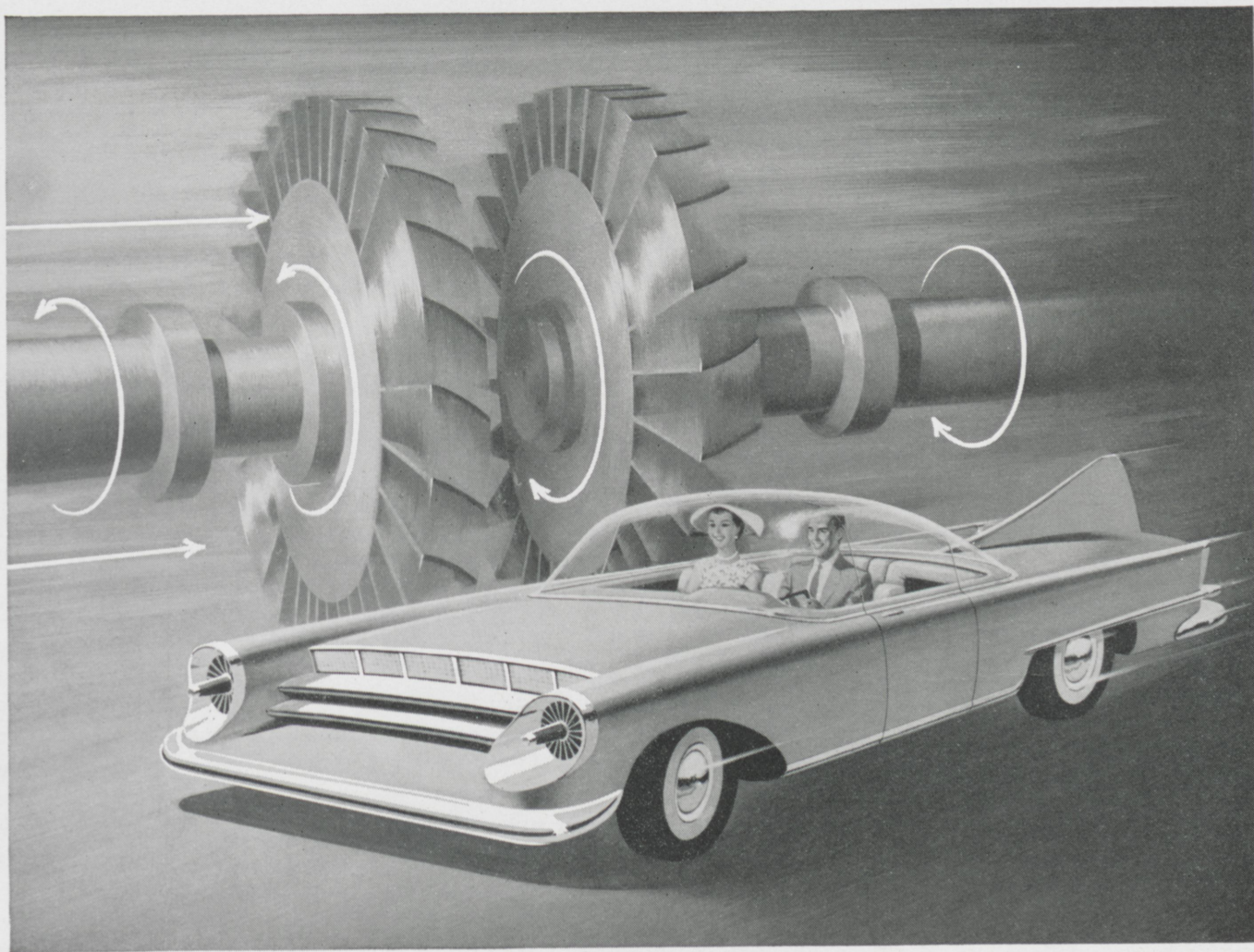
*John R. White* is a graduate of the class of 1947. He resides in Edgewood Grove of Terre Haute on 220 Woodbine Drive; Telephone L-0600.

Mr. White is a Mechanical engineer and is the president of Crawford and White Incorporated. The corporation supplies power transmission equipment and industrial pumps to local industries. The main function of the corporation is engineering sales.

In civic work Mr. White is a member of the Terre Haute management Club. He was a past state director of the Indiana Society of Professional Engineering. He is now a trustee of the Westminster Presbyterian church. As a student John White was an assistant editor of the *Rose Technic*, and is a member

(Continued on page 32)





This "windmill" or turbine, spun by hot gas, powers the turbocar. For such a hot spot, designers depend on Nickel to help them solve heat-resistance problems.

## How Inco Nickel is helping develop the new gas turbine car of tomorrow

It will be power-packed: the gas turbine engine in your dream car of the future and tomorrow's trucks and buses.

**Only one spark plug—  
runs on kerosene**

This new engine is much lighter, smaller. It has far fewer parts. No pistons. No water system. Only one spark plug. Runs on lower-grade fuels.

**Not yet in production!**

Before the car is a showroom reality, engineers face a number of problems.

One problem—the one Inco is helping with—is metals. Strong and economical metals to resist heat and corrosion.

Gas turbines operate at up to 1600°F. These temperatures step up corrosion of metals, promote troublesome distortions. So the job is to develop practical alloys able to carry the load—alloys that can, at the same time, offset the corrosives, resist the distorting forces found at jet-high temperatures.

**How far has Inco research gone  
in its search for practical alloys?**

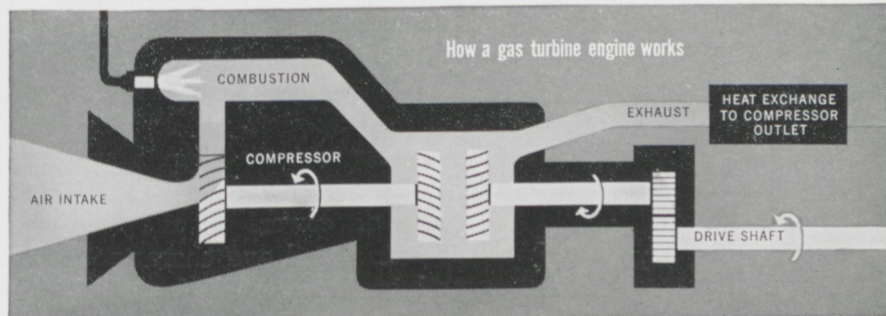
Difficult as they are, the problems of metal performance at high temperature are a

familiar story at Inco. Inco research has dealt with them for years. And come up with solutions in the gas turbine and in many other fields. In conventional, atomic, and thermionic power. In petrochemistry. In heat treating. In jet aviation. In military. Even in Hollywood's 8000°F carbon-arc "suns."

Inco's files contain a wealth of metal information... over 300,000 indexed and cross-referenced case histories, for example. Keep this in mind against the day you may need information.

©1960, Inco

The International Nickel Company, Inc.  
New York 5, N. Y.



## International Nickel

The International Nickel Company, Inc., is the U. S. affiliate of The International Nickel Company of Canada, Limited. Producer of Inco Nickel, Copper, Cobalt, Iron Ore, Tellurium, Selenium, Sulfur and Platinum, Palladium and Other Precious Metals.



# Library Notes

By Carson Bennett and Anita Jackson

Spring has finally arrived and with it has come a renewed interest in outdoor sports. This interest prompted the library staff to search our collection for sports books and periodicals.

The Library subscribes to the following sports magazines:

*Athletic Journal*—the old standby and extremely popular journal.

*Scholastic Coach*—covers all fields of sports and is of interest to the general sports fan as well as coaches.

*Sports Illustrated*—done in the grand manner of its close relatives *Time*, *Life*, and *Fortune*.

*World Tennis*—a magazine devoted to tennis.

And for books in the field of sports, may we recommend the following:

Clymer, Floyd. *Indianapolis 500-Mile Official Yearbook* (we have 1953-1959).

Cozens, Frederick. *Sports in American Life*.

Einstein, Charles. *Fireside Book of Baseball*.

Holzman, Robert. *General "Baseball" Doubleday*.

New York Times. *Greatest Sport Stories from the New York Times*.

Shaw, Wilbur. *Gentlemen, Start Your Engines*.

Simant, Marc. *How to Get to First Base*.

Smith, Walter. *Out of the Red*.

Sports Illustrated. *Spectacle of Sport*.

Verlin, Bob. *The Race*.

**FROM THE NEW BOOK SHELF**  
*Fuel for the Flame*, by Alex Waugh

*Fuel for the Flame* is a long, many-charactered, constantly exciting story of what happens to men and their women under the tensions of life on an imaginary island on the Equator, an island which has suddenly achieved importance through the discovery of oil.

At one end of this island is the oil refinery where the members of the staff live in constant proximity to one another, and where emotions are heightened by the lack of privacy. The men are goaded by ambitions for power, the women are drawn into affairs of love and passion.

At the other end of the island is a hotbed of politics where a British diplomat is attempting to retain the island under Britain's sphere of influence; where an ailing king is fearful of what will happen when he is succeeded by a young and untrained prince; where a nationalist group is plotting to overthrow the monarchy and seize the oil fields.

Mr. Waugh handles brilliantly his political plots and counter-plots, but always interwoven with them are the personal dramas of love and fear, of cowardice and courage. Rich in detail and characterization, and in the exotic colors and customs of this strange land, the novel has constant suspense and variety. Its theme is important, but always subordinated to dramatic event.

*Stranger Than Science*, by Frank Edwards

A fantastic yet factual collection of fascinating stories taken from life. These fabulous occurrences checked and double-checked—and still offer no plausible explanation.

In these pages you will read about a man who vanished—even while he was in sight of his family—whose pleas for help were heard by his children seven months later at the same spot—but who has never reappeared. Between these covers is the true tale of the dream that shook the world—one of the greatest news scoops of all time. Here too are compiled the full facts about "the devil's footprints"—prints that caused an entire community to seek the thing that had left prints even on their rooftops.

Frank Edwards' reputation as a master of narrative wins new laurels as he tells these true tales with easy-to-read, impact-packed punch.

*Life in the Crystal Palace*, by Alan Harrington

Most people who work for large corporations live without anxieties about their jobs, about the future, about much of anything. They are insured from their children's cradles to their own graves. In return, but one concession is asked of them: they must put away the desire to arrange their own careers, and be satisfied to work communally in groups and committees.

(Continued on page 34)



# Locker Rumors

By Bob Michael, jr., e.e,

The final game of the 1959-60 basketball season was played on February 27 at the fieldhouse. Hosts of the Rose Poly Engineers were the Blackburn Beavers. Starting from the tip off, Rose moved on top with the consistent outside scoring punch. At half time they held a commanding lead of 42-29. However, after the beginning of the second half, the pendulum seemed to swing the other way as Blackburn cut down the lead. Finally with about 8 minutes gone in the second half, the score was tied at 57 all. Both teams then settled down and batted the lead back and forth. With a final rush, the Engineers pulled it out of the fire, 79-77. Scoring for Rose was carried mostly by Phil Chute, Woody Stroupe and John Ray. They had 19,

17, and 16 points respectively.

With the final game over, Rose has finished another basketball season. This year's record reads 7 victories, against 11 defeats. Although the loss of Woody Stroupe and Ron Jennings will be felt, next year's outlook must be termed hopeful with all returning men having good experience.

## INTRAMURALS

The fall intramural program has finally been brought to a halt. With spring just around the corner, everyone is looking forward to the outdoors. Soon softball and track lists will be posted and spring sports will be underway again.

The finish of the intramural volleyball league was very exciting.

At the close of regulation league play, two teams were tied for first place—the B.S.B. I team and the Juniors. In a playoff between the two teams, the Juniors emerged victorious and the champions. Members of this team included Dick Landenberger, Bob Stark, Dick Pike, Dean Powell, Bill Volkers, Bill Paris, and Jim Kvasnica.

The B II Celtics, a freshman squad, has established a first in intramural basketball. By winning both the regular league title and the play-off championship, they became the first freshman team to accomplish this feat. They went through the entire season without a single defeat, having a 10-0 record. Their team was a well balanced combination of scoring potential and defensive ability. Comprising the team were Gary Reynolds, Dick Shade, Jim Young, Paul Richardson, and Ken Miller.

The intramural bowling championship went to Joe Andel's sophomore team. They gained this honor in a roll-off which was necessitated by a three-way tie for first place at the end of the season. The other two teams, in order of finish, were Dick Pike, with his Junior Keglers, and Jack Gilmore with another Junior group. In the roll-off the scores were: Andel-1541; Pike-1471; Gilmore-1407. Andel's group seemed to bowl the best under pressure, bowling an 839 for the first two play-off games. Their second game

(Continued on page 32)



Spring weather brings the Rose men onto the baseball diamond.



## PROFESSIONALISM

(Continued from page 13)

Registration is very important because it distinguishes a person who is capable of doing sound engineering work and is capable of accepting the responsibility delegated to him by the public to do a job which they, the general public, are not educated or trained to do, from a craftsman or a technician who does not have the education or the experience to do the work or accept the responsibility of the engineer. Other reasons why it is desirable to be registered are that states require it if the engineer's practice is directly connected with public health, safety, or property; some industries will hire only registered engineers. If an engineer is to act on a board of arbitration his decision will be much more respected if he is a registered engineer, and an engineer appearing before a court either as a plaintiff, defendant, or an expert witness will have much more value attached to his statements by the court if he is registered.

If a professional engineering association were formed, it would probably require all practicing engineers to become registered. In this way a higher quality of engineering work could be expected by the public since only proved competent men would be allowed to practice. This move would also help to make the distinction between an engineer and a technician more definite.

2. *Belonging and contributing to the professional societies.* The second step in an individual's professional development is an active participation in the professional association such as the A. S. C. E., A. S. M. E., A. I. Ch. E., and A. I. E. E. This step allows the individual to share in and contribute to the common pool of knowledge which his heritage as an engineer has made available to him. Belonging to a professional society will benefit an engineer in that it presents the opportunity for him to learn of new developments in work related to his own, through the society's publications, meetings, and lectures. An engineer will also make many valu-

able contacts through the activities of a society which he could not otherwise make. Contributing to a society in the form of technical papers will benefit an engineer in that it presents an opportunity for his talent to be recognized by his fellow engineers, and thus he fulfills the personal desire for recognition which most individuals have. The writing of technical papers also helps to fulfill a professional man's obligation to teach others how to better serve mankind.

3. *Following the code of ethics.* The third step in the development of a professional man is the adherence to the engineering code of ethics.

The following code, published by the American Society of Civil Engineers, has been drawn up with the consulting engineer in mind, but the principles of fair play apply to engineering practice in general.

"It shall be considered unprofessional and inconsistent with honorable and dignified bearing for any member of the American Society of Civil Engineers:

"To act for his clients or for his employers in professional matters otherwise than as a faithful agent or trustee, or to accept any remuneration other than his stated charge for services rendered to his clients.

"To attempt to injure falsely or maliciously, directly or indirectly, the professional reputation, prospects, or business of another engineer.

"To attempt to supplant another engineer after definite steps have been taken toward his employment.

"To invite proposals for the performance of engineering services or to state a price for such services in response to any such invitation, when there are reasonable grounds for belief that price will be the prime consideration in the selection of the engineer.

"To compete with another engineer for employment on the basis of professional charges, by reducing his usual charges and in this manner attempting to underbid after being informed of the charges named by another.

"To review the work of another engineer for the same client, except with the knowledge or consent of such engineer, or unless the connection of such engineer with the work has been terminated.

"To advertise in self-laudatory language, or in any other manner derogatory to the dignity of the profession.

"To use undue influence or offer commissions or otherwise solicit professional work improperly, directly or indirectly.

"To act in any manner or engage in any practice which will tend to bring discredit on the honor or dignity of the engineering profession."

The other professional societies have similar codes.

If the steps outlined above are followed by each present-day engineering graduate the ultimate goal of the professional movement, to gain professional status for engineers and to set up a strong professional association, will someday become a reality.

---

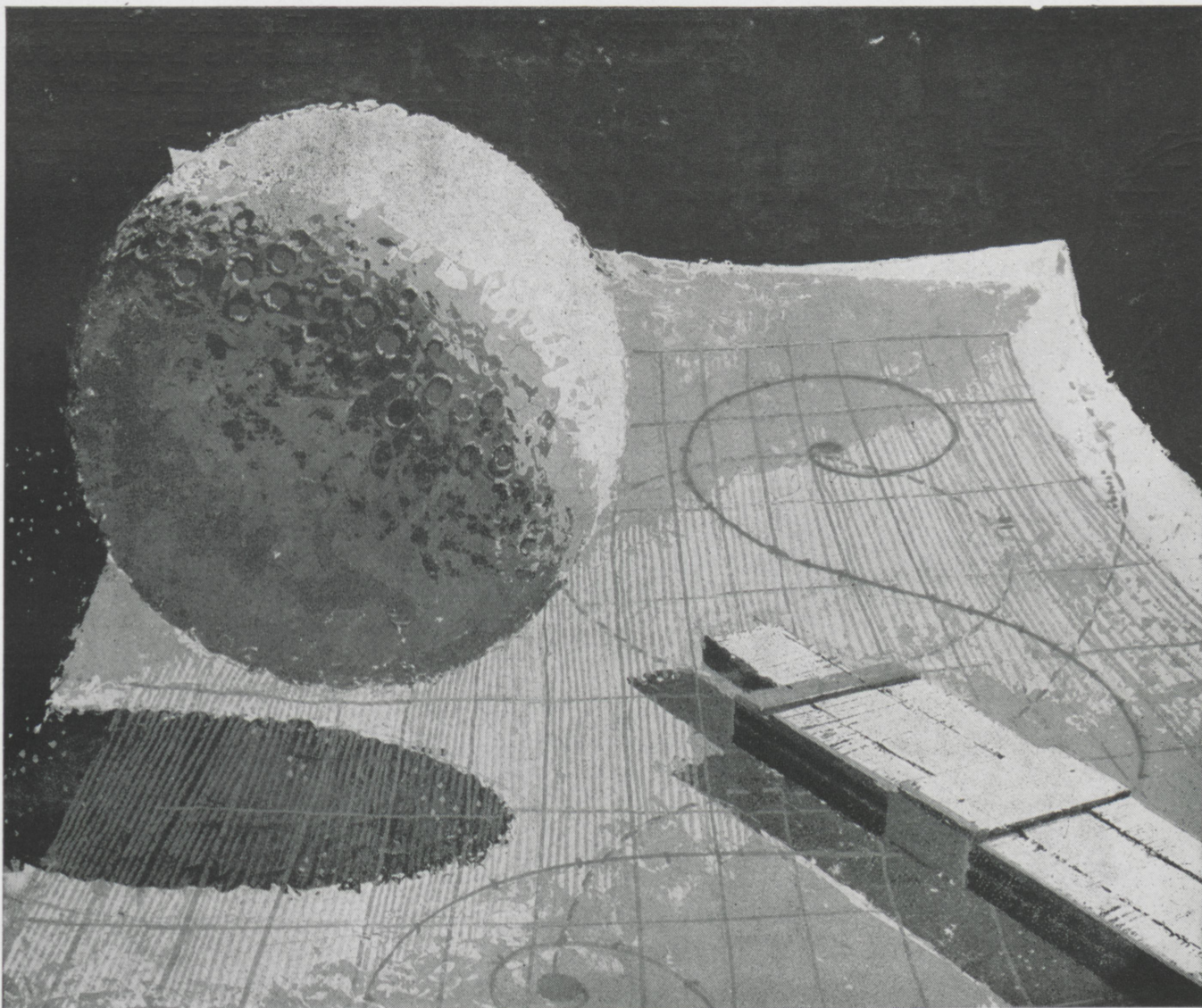
## INDETERMINACY

(Continued from page 15)

can never know the guiding motif of the order in the world, have on our society? It will be very difficult for people to understand. The man in the street will twist, "the scientist has come to the end of meaning" into "the scientist has penetrated as far as he can with the tools at his command." Gradually, however people will understand and be able to accept the fact that they can never know all. It will cause a change in education, and the end result of this educational change will be that the idea will become commonplace.

It has been said that the program of science is finite. The scientist is perhaps only a passing phase in the evolution of man; after unguessable years it is not impossible that his work will be done, and the problems of mankind will become for each individual the problem of best ordering his own affairs. The program of science is finite but it may be longer than the world.





## What happens to your career... after you join Western Electric?

You'll quickly find the answer is *growth*. The signs of progress — and opportunity — are clear, whether your chosen field is engineering or other professional work. There is the day-to-day challenge that keeps you on your toes. There are new products, new areas for activity, continuing growth, and progressive programs of research and development.

For here telephone science is applied to two major fields — manufacture and supply for the Bell Telephone System, and the vitally important areas of defense communications and missile projects.

You'll find that Western Electric is career-minded... and *you*-minded! Progress is as rapid as your own individual skills permit. We estimate that 8,000 supervisory jobs will open in the next ten years — the majority to be filled by engineers. There will be corresponding opportunities for career building within research and engi-

neering. Western Electric maintains its own full-time all-expenses-paid engineering training program. And our tuition refund plan also helps you move ahead in your chosen field.

Opportunities exist for electrical, mechanical, industrial, civil and chemical engineers, as well as in the physical sciences. For more information get your copy of *Consider a Career at Western Electric* from your Placement Officer. Or write College Relations, Room 200D, Western Electric Company, 195 Broadway, New York 7, N. Y. Be sure to arrange for a Western Electric interview when the Bell System team visits your campus.



Principal manufacturing locations at Chicago, Ill.; Kearny, N. J.; Baltimore, Md.; Indianapolis, Ind.; Allentown and Laureldale, Pa.; Burlington, Greensboro and Winston-Salem, N. C.; Buffalo, N. Y.; North Andover, Mass.; Lincoln and Omaha, Neb.; Kansas City, Mo.; Columbus, Ohio; Oklahoma City, Okla.; Engineering Research Center, Princeton, N. J.; Teletype Corp., Chicago 14, Ill. and Little Rock, Ark. Also W. E. distribution centers in 32 cities and installation headquarters in 16 cities. General headquarters: 195 Broadway, New York 7, N. Y.



## Proud of your School?



**BE  
PROUD  
OF YOUR  
WORKING TOOLS...**

**A.W.FABER  
CASTELL**

*helps the hand that  
shapes the future*

#9000 CASTELL Pencil with world's finest natural graphite that tests out at more than 99% pure carbon. Exclusive microlette mills process this graphite into a drawing lead that lays down graphite-saturated, non-feathering lines of intense opacity. Extra strong to take needle-point sharpness without breaking or feathering. Smooth, 100% grit-free, consistently uniform, 8B to 10H.

#9800 SG LOCKTITE TEL-A-GRADE Holder, perfectly balanced, lightweight, with new no-slip functional grip. Relieves finger fatigue. Unique degree indicating device.

#9030 imported Refill Leads, matching exactly #9000 pencil in quality and grading, 7B to 10H, packed in reusable plastic tube with gold cap.

A man advancing in his career just naturally gravitates to CASTELL, world's finest drawing pencil. You'll be wise to begin now.

**A.W.FABER - CASTELL**

Pencil Co., Inc., Newark 3, N. J.

**CASTELL 9030**

## COLLEGE VACUUM

(Continued from page 19)

unless students start showing more respect toward instructors, this close relationship may end. Too often students barge right into an office without knocking or at least hesitating at the door until noticed. This is and should be a common courtesy. How many times would you have liked to go into an office and discuss a problem with your instructor only to be stopped by a bunch of guys sitting in there holding a bull session. The math department has a good policy: use the office for study, research, or consultation, no bull sessions allowed.

Another social field in which we could improve is appearance. At many schools it is a privilege for seniors to wear white shirts and ties to class. Wouldn't this be a better tradition to have at Rose than knocking some freshman's head in? And perhaps with ties and white shirts would come a more professional approach to our work in the class rooms and labs. This is the way we have to dress when we start working after college. Why not get used to it now?

When we are out of school and working I am sure that all of us intend to take an active part in our community affairs. Why not take part in the affairs of the community we live in? Join the clubs of our college, and professional organizations of our college, take an active part in them for this way Rose's prestige and her contributions to not only the field of engineering, but all fields, will be greatly increased.

Perhaps we can carry this last suggestion even farther. All of us are agreed that Terre Haute is not the finest city in the world, yet have we done anything to improve it? I'm sure that the committee on flouridation would welcome any chemist who showed interest in working with them. There are two major political parties in Terre Haute and a very active third local committee. Why not join them, present your ideas, help to improve

Terre Haute, help to improve yourself, and add to the stature of Rose. Take part in church activities, go to community meetings and social events, show that Rose students take part. When you do you will find that our faculty is already taking a very active part.

As a last thought, I believe all pretty much agree that the liberal arts course at Rose leaves something to be desired. Many of us are interested in learning how to draw, or paint, some in finding out what classical music is all about, others in ancient history or law or biology. Indiana State Teachers College offers courses dealing with these and many other subjects, and have a faculty that is well equipped to give good, interesting courses in them. I am sure that if enough students were interested, Rose and I.S.T.C. could work out and be most happy to carry out an exchange program whereby we could be able to take some of their liberal art courses here on campus and the Rose faculty would offer I.S.T.C. students courses they would be interested in. Has it ever occurred to you that they might be interested in how a radio works? A close relationship between Rose and I.S.T.C. could be an invaluable aid to both colleges and would certainly help broaden the thinking of both student bodies.

This article has been composed mostly of ideas, all of which I think should be considered seriously. Talk with our president, your instructors, each other, present your ideas both by talking about them and writing about them. If you feel that you have a good idea write it down and send it to the **TECHNIC** or the **EXPLORER**. With enough response from both faculty and students perhaps some informal meeting and convocations can be held to discuss and kick around some of the suggestions. But let's do it now. Take part, don't live in an ivory tower.

Don't let it be said that Rose engineers live in a "college vacuum." Learn to be leaders in our community now, and graduate as adult engineers from Rose.



## Freitag-Weinhardt

Inc.

917 Eagle St.

PHONE C-2394

PLUMBING -  
HEATING  
AIR CONDITIONING

ALLEN I. WEINHARDT  
CHARLES J. KANTMANN

Hunter, Gillum & Hunter, Inc.

---

GENERAL INSURANCE

---

BONDS

---

709 Wabash      Terre Haute

Phones C-1400  
C-3123

*"The Fountain Pen Store"*

## VIQUESNEY'S

*Drawing Equipment  
and  
Supplies*

644 Wabash - 815 Ohio

TERRE HAUTE,  
INDIANA

### ADVERTISING INDEX

Allison Div. of General Motors	10
The Asphalt Institute .....	34
A. W. Faber Castell Pencil Co.	30
Convair-Pomona .....	7
E. I. DuPont de NeMours .....	35
Freitag-Weinhardt, Inc. ....	31
The Garrett Corporation .....	33
G. E. Company .....	back cover
General Motors Corp. ....	1
Heinl's Flower Shop .....	31
Hunter, Gillum, & Hunter .....	31
International Nickel Co. ....	25
Pigg's Barber Shop .....	31
Standard Oil Co. ....	5
Star Cleaners .....	32
U.S. Steel Corp. ..inside front cover	
Viquesney's .....	31
Western Electric Co. ....	29
Westinghouse Electric Corp. ....	6

NOMAN PIGG'S

## Barber Shop

*Flat Tops*

(Any Style)

1303 Wabash

## MEN

of

## ROSE

Remember that  
Special Occasion

*Give her a Corsage  
by HEINL'S*

HEINL'S FLOWER SHOP  
WILLIAM C. "Bill" BECKER  
129 So. 7th St.  
Terre Haute, Ind.



Cleaners

**STAR**

Launderers

11th and Lafayette

Phone L-6177

We Operate the Most Modern

Dry Cleaning Plant

In The City

Experience

is a great teacher

but . . .

you can learn more

from books

cheaper and faster

Order your books through

**Rose Polytechnic  
Book Store**

## RESEARCH and DEVELOPMENT

(Continued from page 23)

utilize other features such as air-conditioning, roomy office areas, heating, a physics library, staff offices, cafeteria, reception area, etc.

### FUSION WELDER

Tungsten Inert Gas (T.I.G.) has been utilized in a boom manipulator fully automatic, fusion type welder. The welder has been used with T.I.G. welding various sub-assemblies such as high-heat resistance heat-treatable alloys of various configurations to prove its objectives of economy, flexibility, and resistance.

The boom manipulator welder has the ability to weld through a complete circle of 360°, having been used in practically every position. With the use of the welder it is possible to weld the circumference of a cylinder. The welder also utilizes the concept of "automatic step welding," in which the weld setting automatically changes as the thickness of the material being welded changes. In this way a weld of uniform penetration is obtained. Welding parameters are adjusted by a station at the end of the boom and at the main control panel. The welder has the ability to execute a weld length of twelve feet. Internal circumferential welds are carried out automatically through a twenty inch duct by utilizing a miniaturized weld head.

The welder utilizes a special drive control, called by its trade name, "Transistorized Zero-Error Sciakydyne Drive." The torch is aligned directly over the seam to be welded by a special tracking system. It also has the ability to track a vagrant seam "off" the weld axis in either the horizontal or vertical plane four inches. Constant tungsten arc spacing is assured through an arc length control system and proximity transducer unit attached to the torch.

A T.V. camera is placed adjacent to the welder head, with the receiving screen located on the operator's platform opposite the main control panel, which acts as a console. This amazing fully automatic T.I.G. type fusion welder has been built by Sciaky Bros., Inc., of Chicago Illinois.

## LOCKER RUMORS

(Continued from page 27)

was 702, which gave them the 1541 total.

This seemed to be the year for ties in league play. Theta Xi and Sigma Nu ended the interfraternity basketball season deadlocked for first, while Lambda Chi Alpha and Alpha Tau Omega were tied for third. In an evening of playoffs, Theta Xi and Lambda Chi Alpha emerged from the smoke on the court in victorious style. Following the evening's play, the final standings were: Theta Xi, champions, Sigma Nu, Lambda Chi Alpha, and Alpha Tau Omega.

The ping-pong tournament is progressing at a rapid pace with the first round winners soon to be pitted against each other for the second round. Also under way or scheduled to begin soon are the intramural tennis matches. There seems to be quite a bit of tennis talent around which should make the tournament very interesting this year.

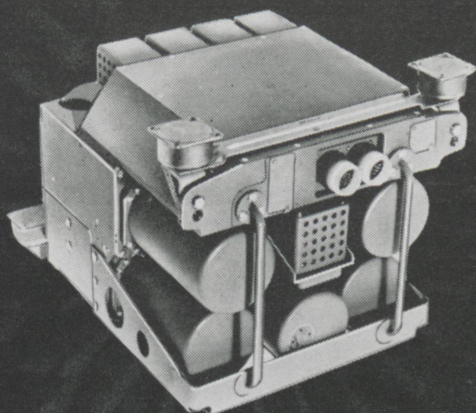
## ALUMNI NEWS

(Continued from page 24)

of Blue Key and Alpha Tau Omega.

In respect to the engineering field Mr. White states: "An engineering student must have a sincere desire to become an engineer. While he is a student, he should learn to think objectively. In other words, he should develop an ability to realize a physical interpretation for his 'paper work.' In school and in later life one should not be afraid of hard work, and he should accept challenges. Another important aspect of engineering work is to respect your associates. Many times we learn too late that we must treat our business associates the way they wish to be treated. As a final reminder to students and others now working in the field, many business people judge a man by his letters. Rose Poly as a college and as individual students needs to place more emphasis on fine arts, especially the art of communicating with one's fellow workers."





## FLIGHT AND ELECTRONIC SYSTEMS

• Flight data systems are essential equipment for all modern, high speed aircraft. In the AiResearch centralized system, environmental facts are fed to a central analog computer (above), which in turn indicates to the pilot where the aircraft is, how it is performing, and makes automatic control adjust-

ments. Pioneer in this and other flight and electronic systems, AiResearch is also working with highly sensitive temperature controls for jet aircraft, autopilot systems, submarine instrumentation, transistorized amplifiers and servo controls for missile application, and ion and radiation measuring devices.

### EXCITING FIELDS OF INTEREST FOR GRADUATE ENGINEERS

Diversity and strength in a company offer the engineer a key opportunity, for with broad knowledge and background your chances for responsibility and advancement are greater.

The Garrett Corporation, with its AiResearch Divisions, is rich in experience and reputation. Its diversification, which you will experience through an orientation program lasting over a period of months, allows you the best chance of finding your most profitable area of interest.

*Other major fields of interest include:*

• **Missile Systems**—has delivered more accessory power units for missiles than any other company.

AiResearch is also working with hydraulic and hot gas control systems for missiles.

• **Environmental Control Systems**—pioneer, leading developer and supplier of aircraft and spacecraft air conditioning and pressurization systems.

• **Gas Turbine Engines**—world's largest producer of small gas turbine engines, with more than 8,500 delivered ranging from 30 to 850 horsepower.

Should you be interested in a career with The Garrett Corporation, see the magazine "The Garrett Corporation and Career Opportunities" at your College placement office. For further information write to Mr. Gerald D. Bradley...



**AiResearch Manufacturing Divisions**

*Los Angeles 45, California • Phoenix, Arizona*

*Systems, Packages and Components for: AIRCRAFT, MISSILE, NUCLEAR AND INDUSTRIAL APPLICATIONS*



## LIBRARY NOTES

(Continued from page 26)

Our protected man is usually a good person, amiable, polite, decent, and co-operative. And the Crystal Palace, symbol of corporate life, seems nothing less than the headquarters of the Good Society.

What, if anything, is wrong with this? Would you be happy there, or bored and frustrated? Alan Harrington describes the organization's impact on his own life and on the lives of his friends and associates, using his novelist's skill to tell, beautifully and artfully, dramatically and often movingly, what happened to this person after working under these seemingly perfect conditions.

The book is filled with wonderful vignettes of Crystal Palace people, from executives to office girls. It discusses hiring and promotion practices, the mysterious and comic workings of public relations, the twilight years of company pensioners, the secrets of success and the equally important secrets of failure.

For contrast Mr. Harrington recalls some of his earlier trials amid the hazards of free enterprise. At the end of this richly human book he examines the tenets that corporation employees live by, and finds that he cannot accept them. *The Sociological Imagination*, by C. Wright Mills

Lecturing recently in Europe, Professor Mills found it difficult to explain why American social scientists were absorbed by opinion polls and theoretical studies at a time when man's very freedom and reason are at stake. This experience channeled his own convictions into the writing of this book. *The Sociological Imagination* is a cultural critique of the social sciences by one of America's most stimulating social analysts. It contains acid criticisms of ascendant schools of sociology in the United States and a detailed restatement and sharp defense of the tradition of classic sociological analysis.

Various depicted by artists and writers as the helpless and uneasy

prey of forces beyond his control (e.g. War), modern man appears in danger of losing control over his own destiny. It is the intellectual and political task of the social scientists, Mr. Mills believes, to relate such troubled feelings to structural changes of our society, to examine, for example, personal marriage troubles in the light of institutional crises of the family, and by discovering causes to suggest reasonable choices of action.

Fashionable schools of sociology have lost sight of this task. Among those Mr. Mills lambastes are the *grand theorists*, represented by Talcott Parsons and his followers, the *abstracted empiricists*, led by Paul Lazarsfeld, Samuel Stouffer, and others, liberal reformers in the social work tradition, and the newest bureaucratic breed—human relations experts and market researchers. His attack will outrage some people, but it will spur others to work with renewed enthusiasm toward the clarification and responsible solution of present-day problems.

## Design for your future!

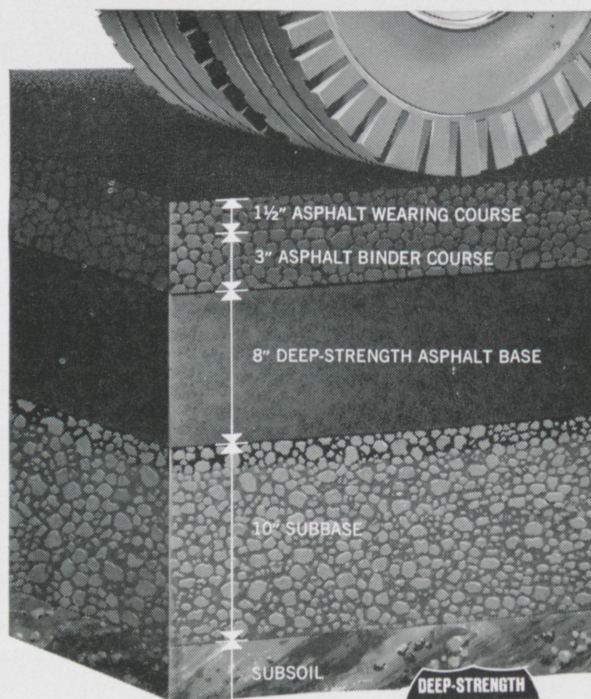
### Learn how to build the new **DEEP-STRENGTH** Asphalt pavements

If you're going into Civil Engineering, it will pay you to keep a close eye on Asphalt design developments.

Here, for example, is the latest from Oklahoma . . . one of the new, DEEP-STRENGTH Asphalt pavements the state is using on Interstate 40. This one is outstanding because its base is 8 inches of hot-mixed—hot-laid sand-Asphalt . . . no coarse aggregate.

Why 8 inches? Why not 6 or 10? What did engineers do to insure good drainage? What factors set the design?

The Asphalt Institute answers questions like these . . . keeps you abreast of all the latest in the design of Asphalt Highways, the most durable and economical pavements known. Would you like our new booklet, "Advanced Design Criteria for Asphalt Pavements", or our "Thickness Design Manual"? Write us.



Ribbons of velvet smoothness . . .  
ASPHALT-paved Interstate Highways



**THE ASPHALT INSTITUTE**  
Asphalt Institute Building, College Park, Maryland



**ENGINEERS  
CHEMISTS  
PHYSICISTS  
MATHEMATICIANS**

*Looking for Opportunity?*

## **LOOK TO DU PONT!**

Today is a time of rapid growth and expansion at Du Pont. Development activities are being accelerated, and new processes are being installed at plants new, old and under construction.

This creates need for technical graduates: chemists (all specialties), physicists, mathematicians; engineers of almost every specialty—chemical, mechanical, industrial, electrical, metallurgical.

**LOCATIONS:** Eastern half of U. S. primarily

**REQUIREMENTS:** Recent Bachelor's, Master's or Doctor's degree

Write to . . .

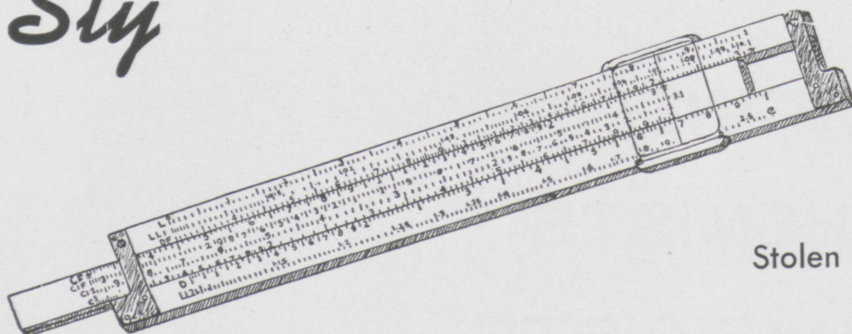
2420-4 Nemours Building  
E. I. du Pont de Nemours & Company (Inc.)  
Wilmington 98, Delaware



**BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY**



# Sly



# Droolings

Stolen by Bob Franzwa, jr., m.e.

Coed: "Will you marry me?"

M.E. "No, but I admire your good taste."

\* \* \*

A young mother, somewhat embarrassed, has just unburdened herself and told her daughter the facts of life. At the end, she said, "Now if you want to know anything else, ask me."

The girl studied a moment, then said, "How do they get the Saturday Evening Post out on Tuesday?"

\* \* \*

Girls who do everything under the sun should have their kids tanned.

\* \* \*

Lecturer: If I talk **too** long, it's because I forgot my watch and there's no clock in this hall.

Voice from the back: There's a calendar behind you.

\* \* \*

There are only two kinds of parking left on campus — illegal and no.

\* \* \*

He smiled at her across the candlelit table. She affectionately in return.

"Smile like that again," he whispered.

She blushed and again cutely displayed her dimples.

"Just as I thought," he said. "You look just like a chipmonk."

A fraternity had sent its window curtains to the cleaners and there was some delay in having them returned. One morning a note arrived from the girls' rooming house across the street. "Dear Sirs," it read, "May we suggest that you procure curtains for your windows. We do not care for a course in anatomy."

The chap who left his shaving to answer the door and received the note, sent back the following answer:

"Dear Ladies: This course is not compulsory."

\* \* \*

"I just don't care (sob) . . . It wasn't nice of you (sob) . . . Now you can just take your arms away . . . I don't care what you say (sniff) . . . No, you're not gonna get this beer too."

\* \* \*

T.C.C. III: "Why didn't I make a 100 on my history exam?"

J.L.B.: "You remember the question: 'Why did the pioneers go into the wilderness?'"

T.C.C. III: "Yeah."

\* \* \*

"Oh Dear, I've missed you so much." Then she raised the revolver and tried again.

\* \* \*

Last night I held a little hand,  
So dainty and so sweet.  
I thought my heart would surely break

So wildly did it beat.  
No other hand in all this world  
Could greater solace bring,  
Than that sweet hand I held last night—

Four aces and a king.

J.L.B.: "Well, your answer — while very interesting — was incorrect."

\* \* \*

He who laughs last has found a double meaning.

\* \* \*

Coed: The nimblest man on campus is the one who can shift gears in a Volkswagon without getting his face slapped.

\* \* \*

Blonde: "Wouldn't you call it mental telepathy if we were both thinking of the same thing?"

Engineer: "No, just plain luck."

\* \* \*

E.E. "Thought you were going to visit that blonde in her apartment."

C.E. "I did."

E.E. "How come you're home so early?"

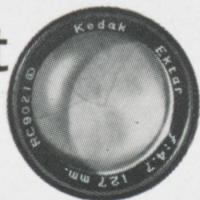
C.E. "Well we sat and chatted awhile. Then suddenly she turned out the lights. I can take a hint."

\* \* \*

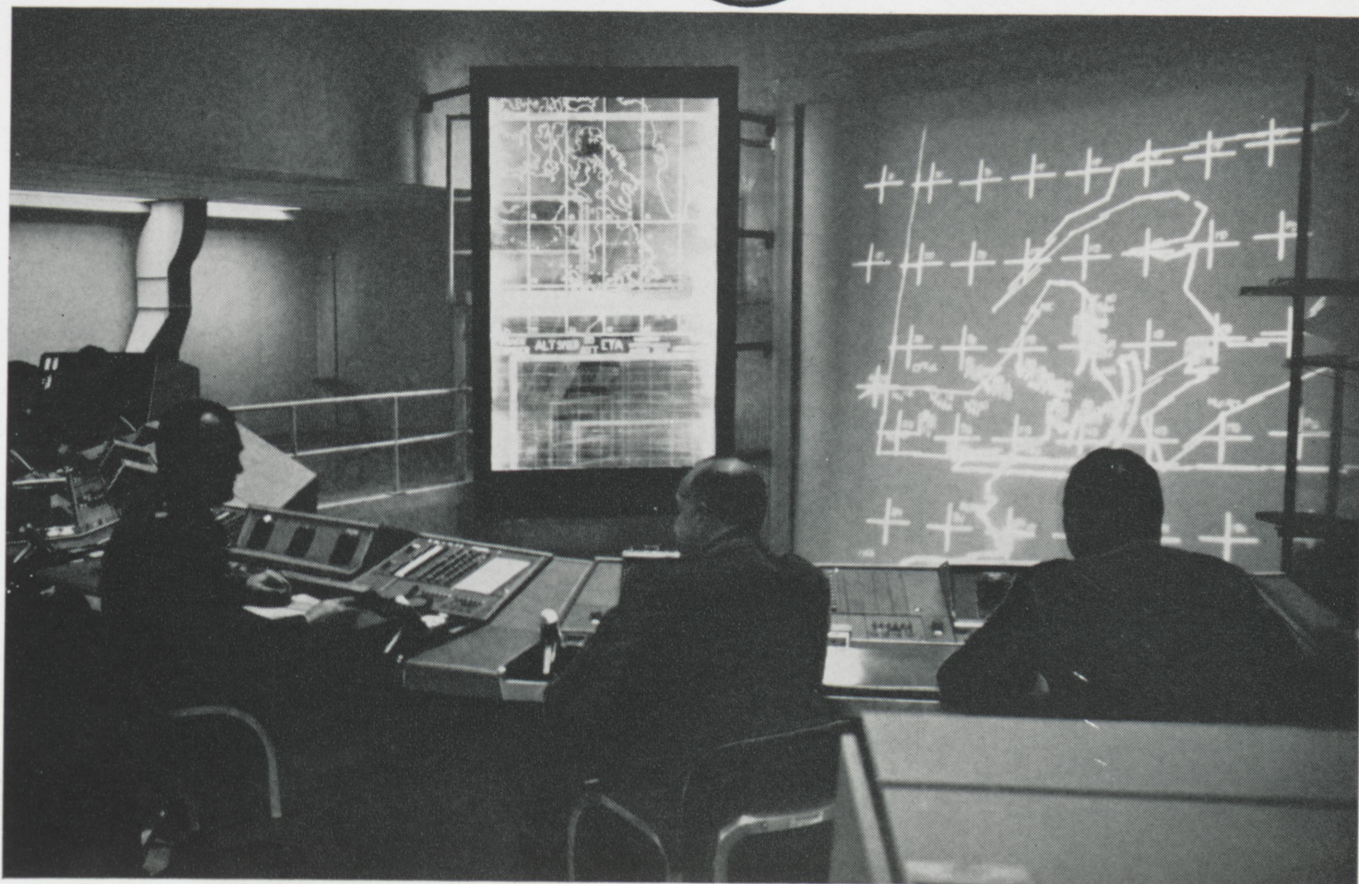
A parrot was sitting in the salon of a luxurious steamer watching a magician do tricks. The magician served notice that he was going to do a trick never before accomplished. He pulled up his sleeves and proceeded to make a few fancy motions. Just at that moment, the ship's boilers blew up, demolishing the ship. About five minutes later, as the parrot came to, floating about the ocean on a piece of driftwood, he muttered, "Dam clever, damn clever."



If your sights are set



on electronics—



With the IBM Sage computer, Air Force personnel view computer-generated displays projected in the Command Post.

## —you'll find **Photography at Work** with you

THE engineer working in electronics finds photography one of his most valuable tools. For example, he uses camera and film to capture and study the fleeting transient on the oscilloscope face.

X-rays and film provide him with a check on the internal integrity of sealed components. Even intricate circuits can be printed and miniaturized by photographic methods.

There's hardly a field on

which you can set your sights where photography does not play a part in simplifying work and routine. It saves time and costs in research, on the production line, in the engineering and sales department, in the office.

So in whatever you plan to do, take full advantage of all the ways photography can help.

**CAREERS WITH KODAK:**  
With photography and photographic processes becoming in-

creasingly important in the business and industry of tomorrow, there are new and challenging opportunities at Kodak in research, engineering, electronics, design, sales, and production.

If you are looking for such an interesting opportunity, write for information about careers with Kodak.

Address: Business and Technical Personnel Department,  
Eastman Kodak Company,  
Rochester 4, N.Y.

**EASTMAN KODAK COMPANY**

Rochester 4, N.Y.

**Kodak**  
TRADEMARK





One of a series

*Interview with  
General Electric's Earl G. Abbott,  
Manager—Sales Training*

## Technical Training Programs at General Electric

**Q.** Why does your company have training programs, Mr. Abbott?

**A.** Tomorrow's many positions of major responsibility will necessarily be filled by young men who have developed their potentials early in their careers. General Electric training programs simply help speed up this development process.

In addition, training programs provide graduates with the blocks of broad experience on which later success in a specialization can be built.

Furthermore, career opportunities and interests are brought into sharp focus after intensive working exposures to several fields. General Electric then gains the valuable contributions of men who have made early, well-considered decisions on career goals and who are confidently working toward those objectives.

**Q.** What kinds of technical training programs does your company conduct?

**A.** General Electric conducts a number of training programs. The G-E programs which attract the great majority of engineering graduates are Engineering and Science, Manufacturing, and Technical Marketing.

**Q.** How long does the Engineering and Science Program last?

**A.** That depends on which of several avenues you decide to take. Many graduates complete the training program during their first year with General Electric. Each Program member has three or four responsible work assignments at one or more of 61 different plant locations.

Some graduates elect to take the Advanced Engineering Program, supplementing their work assignments with challenging Company-conducted study courses which cover the application of engineering, science, and mathematics to industrial problems. If the Program member has an analytical bent coupled with a deep interest in mathematics and physics, he may continue through a second and

third year of the Advanced Engineering Program.

Then there is the two-year Creative Engineering Program for those graduates who have completed their first-year assignments and who are interested in learning creative techniques for solving engineering problems.

Another avenue of training for the qualified graduate is the Honors Program, which enables a man to earn his Master's degree within three or four semesters at selected colleges and universities. The Company pays for his tuition and books, and his work schedule allows him to earn 75 percent of full salary while he is going to school. This program is similar to a research assistantship at a college or university.

**Q.** Just how will the Manufacturing Training Program help prepare me for a career in manufacturing?

**A.** The three-year Manufacturing Program consists of three orientation assignments and three development assignments in the areas of manufacturing engineering, quality control, materials management, plant engineering, and manufacturing operations. These assignments provide you with broad, fundamental manufacturing knowledge and with specialized knowledge in your particular field of interest.

The practical, on-the-job experience offered by this rotational program is supplemented by participation in a manufacturing studies curriculum covering all phases of manufacturing.

**Q.** What kind of training would I get on your Technical Marketing Program?

**A.** The one-year Technical Marketing Program is conducted for those graduates who want to use their engineering knowl-

edge in dealing with customers. After completing orientation assignments in engineering, manufacturing, and marketing, the Program member may specialize in one of the four marketing areas: application engineering, headquarters marketing, sales engineering, or installation and service engineering.

In addition to on-the-job assignments, related courses of study help the Program member prepare for early assumption of major responsibility.

**Q.** How can I decide which training program I would like best, Mr. Abbott?

**A.** Well, selecting a training program is a decision which you alone can make. You made a similar decision when you selected your college major, and now you are focusing your interests only a little more sharply. The beauty of training programs is that they enable you to keep your career selection relatively broad until you have examined at first hand a number of specializations.

Furthermore, transfers from one General Electric training program to another are possible for the Program member whose interests clearly develop in one of the other fields.

*Personalized Career Planning is General Electric's term for the selection, placement, and professional development of engineers and scientists. If you would like a Personalized Career Planning folder which describes in more detail the Company's training programs for technical graduates, write to Mr. Abbott at Section 959-13, General Electric Company, Schenectady 5, N. Y.*

*Progress Is Our Most Important Product*

GENERAL  ELECTRIC