

Spring 3-1935

## Volume 44 - Issue 7 - March, 1935

Rose Technic Staff

*Rose-Hulman Institute of Technology*

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

---

### Recommended Citation

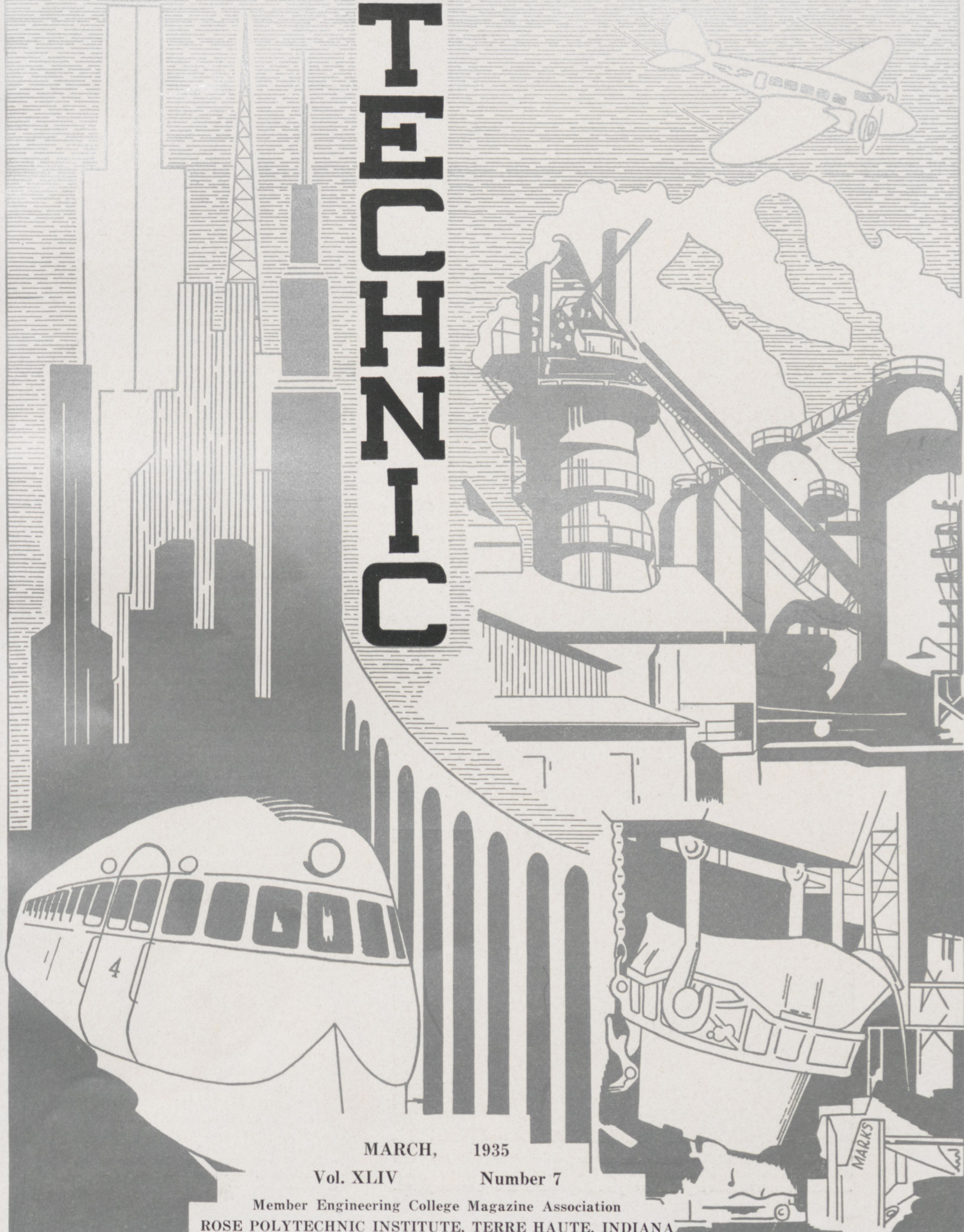
Staff, Rose Technic, "Volume 44 - Issue 7 - March, 1935" (1935). *Technic*. 494.  
<https://scholar.rose-hulman.edu/technic/494>

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

# TECHNICAL CINCINNATI



MARCH, 1935

Vol. XLIV Number 7

Member Engineering College Magazine Association  
ROSE POLYTECHNIC INSTITUTE, TERRE HAUTE, INDIANA

# Knives of Flame

Oxy-Acetylene Machine Cutting and Flame Machining Lower the Cost of Fabrication.

By H. ULLMER\*



**LIKE CUTTING CHEESE**—the oxy-acetylene cutting blowpipe demolishes a 52-ton cast iron rock crusher bowl.

Machines for guiding and moving the oxy-acetylene cutting blowpipe automatically are the most important of the recent developments in man's harnessing of flame for productive purposes. Like ribbons of fire, multiple flames of oxygen mixed with acetylene surround a jet of pure oxygen to cut steel, cast iron and other ferrous metals into intricate patterns—quickly and easily—with remarkable savings in costs over old methods.

## New Methods of Production

Since 1905, oxy-acetylene cutting by hand has been widely used in demolition and maintenance work. During the last several years, the effectiveness of oxy-acetylene cutting as a means of production has been proved and tremendously multiplied by the development of machines for various repetitive cutting requirements. The operating fields of these machines range from the simple bev-

eling of steel plates to the cutting of intricate patterns. Most of the machines can cut vertically and horizontally. Some can be adjusted to cut circles without the use of patterns. Others cut bevels, gouge grooves, and shape complicated designs.

## Shape Thousands of Identical Parts

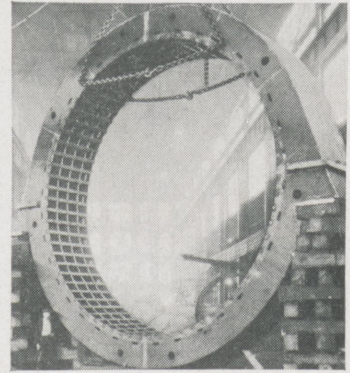
The economical continuous or intermittent production of identical regular or irregular shapes from rolled or forged steel is an outstanding accomplishment of present day oxy-acetylene cutting machines. With remarkable ease they follow templates of the desired form for the pieces to be cut. So accurate are the results that for many purposes the cut pieces can be used without machining or further finishing. Only by looking close at the smooth sides of the cut can an experienced eye tell the difference from a mechanical cut.

## In a Wide Variety of Pieces

Some of the different pieces of equipment fabricated from oxy-acetylene shape-cut steel include: press frames of rolled steel requiring high strength and resistance to shock, gear blanks, cams in all types of intricate designs, forming dies which need little finishing before use, and flywheels often over a foot thick. In every case the shape-cut parts retain the great inherent strength and toughness of the rolled or forged steel from which they are made.

## Costs Cut With Oxy-Acetylene Cutting

No great investment in machinery is needed for oxy-acetylene cutting.



**FLAME-CUT PARTS**—are welded into assemblies like this yoke for a 25,000 KVA Water Wheel Generator.

Pattern cost is reduced to a minimum and the making and storage of expensive and intricate patterns is avoided. In most cases the machine cut shapes can be beveled easily by oxy-acetylene cutting and quickly made ready for assembly by welding, thus further reducing the cost of the finished equipment and making a more salable and a more serviceable product.

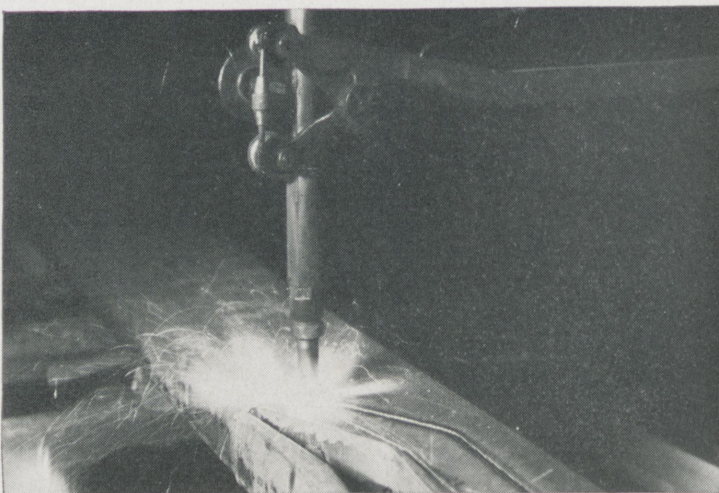
## Machines Now Available

Machines of all sorts for various types of oxy-acetylene cutting and flame machining have been developed by The Linde Air Products Company, a Unit of Union Carbide and Carbon Corporation. Assistance and information as to how oxy-acetylene cutting can be economically fitted into your production operations can be obtained without obligation through Linde Sales Offices at Atlanta, Baltimore, Birmingham, Boston, Buffalo, Butte, Chicago, Cleveland, Dallas, Denver, Detroit, El Paso, Houston, Indianapolis, Kansas City, Los Angeles, Memphis, Milwaukee, Minneapolis, New Orleans, New York, Philadelphia, Phoenix, Pittsburgh, Portland, Ore., St. Louis, Salt Lake City, San Francisco, Seattle, Spokane, and Tulsa. Everything for oxy-acetylene welding and cutting—including Linde Oxygen, Prest-O-Lite Acetylene, Union Carbide and Oxweld Apparatus and Supplies—is available from Linde through producing plants and warehouse stocks in all industrial centers.

## With Engineering Cooperation

Users of oxy-acetylene welding and cutting, and other products and processes developed by Units of Union Carbide and Carbon Corporation benefit from a most unique coordination of scientific research with manufacturing, sales and service facilities. These combined resources of a vast organization assure a full measure of satisfactory performance.

\*Chief Engineer, Service Division, The Linde Air Products Company, Unit of Union Carbide and Carbon Corporation.



**ONE OR A MILLION**—flame cut parts can be produced easily and cheaply by oxy-acetylene machine cutting. These dipper tooth blanks are alike as two peas in a pod. No expensive patterns or dies are required.



Surveying  
This  
Issue



# THE ROSE TECHNIC



Vol. XLIV — Number 7



## CONTENTS

PHOTOGRAPHY AND SCIENCE	- - - - -	3
<i>Joseph B. Weaver</i>		
SOME GENERAL ASPECTS OF RADIO COMMUNICATION	-	5
<i>John H. Straw</i>		
WATER SUPPLY ENGINEERING TWO THOUSAND YEARS AGO	- - - - -	6
<i>E. A. Hamilton</i>		
EDITORIALS	- - - - -	8
RESEARCH AND PROGRESS	- - - - -	12
FRATERNITIES	- - - - -	14
SPORTS	- - - - -	15
ALUMNI	- - - - -	16
HUMOR	- - - - -	20

ONE of the prime requisites of every engineer's technical training is drawing. Today, however, the engineer has turned more to the use of photography to illustrate his ideas. Mr. Weaver, in his very interesting article, tells the part photography has played in science.

THE ordinary layman is somewhat confused even today with the complexities of modern radio communication. Mr. Straw, in his article, presents a few of the general and elementary aspects of radio transmission.

WE engineers are made to realize more and more the fact that the ancients possessed a vast amount of skill and ingenuity in the field of engineering. In his article "Water Supply Engineering Two Thousand Years Ago", Mr. Hamilton tells how the ancient engineers coped with problems of water supply.

"MEET The Seniors." In this issue of the Technic we present several members of the senior class with their achievements during their four years at Rose.

—W. S. S.

Engineering College Magazines Associated  
Mr. Leonard Church, Chairman  
501 Guardian Bldg., Cleveland, Ohio

Arkansas Engineer	Kansas State Engineer	Oregon State Technical Record
Colorado Engineer	Marquette Engineer	Purdue Engineer
Cornell Civil Engineer	Michigan Technic	Pennsylvania Triangle
Illinois Technograph	Minnesota Techno-log	Rose Technic
Iowa Engineer	Nebraska Blue Print	Sibley Journal
Iowa Transit	N. Y. U. Quadrangle	Tech Engineering News
Kansas Engineer	North Dakota State Engineer	Villanova Engineer
Penn State Engineer	Ohio State Engineer	Washington State Engineer
		Wisconsin Engineer

JOHN J. HAGER, *General Manager*

ARTHUR W. HESS, *Editor*

GORDON L. BURT, *Business Manager*

Subscription, per year, \$2.00. Address all communications to THE ROSE TECHNIC, 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.

Published Monthly from October to May by the Students and Alumni of  
Rose Polytechnic Institute.



View of the Fort Peck Dam Site.

*Cut courtesy Military Engineer.*

# PHOTOGRAPHY AND SCIENCE

by

Joseph B. Weaver, Ch., '35

ONE of the prime requisites of every engineer's undergraduate training is drawing. Without this valuable course no engineer can be considered as properly educated. Mechanical and architectural drawing provide a medium by which he can convey his ideas to others in an exact form, while free-hand drawing is useful in portraying ideas which cannot be told in words and which need not be expressed so exactly as to require a mechanical drawing. Freehand drawing may also be used to record the outline of an idea which another individual has developed. In many such situations it may be indispensable, while in others it may be supplemented by the more accurate, speedy, and practical method of photography.

## *As an Aid to the Architect*

This can best be shown by citing a few examples. When an architect takes a trip through one of the architectural centers of the world, he is always on the alert to obtain new ideas in his field of work. Formerly he would have provided himself with a pencil and a suitable drawing pad. Upon seeing an unusual architectural design which he particularly liked, he would have proceeded to sketch the main points of the design for future reference. Obviously, the sketch while portraying the object in general would have been influenced to a certain extent by the artistic views of the individual. Also, it would have been absolutely impossible for him to have obtained an exact reproduction of the design in any reasonable length of time. On the other hand, this could

have resulted in the omission of some slight unnoticed detail which later would give the architect an idea for an improvement of design.

Of course, the modern method is to solve all these difficulties by the use of the camera. It is exact, and will reproduce even to the slightest detail the image of the structure, thus furnishing a strictly exact detailed "sketch" for future reference. Not only may the traveler obtain an exact record, but he may,

\* "Micro-photography has also opened up vast stores of heretofore undiscovered facts concerning the structure of metals.

". . . indispensable in recording ideas concerning dams, bridges and other engineering works."

The engineer will do well to find more uses for photography in his practice. A few are given here by Mr. Weaver.

—Editor.

in only a fraction of the time required to make a single sketch by hand, take a series of views which will bring out in great detail the striking architectural design in which he is interested. This increased speed makes it possible for him to secure ideas from many sources in a short period of time.

## *As Used by the Civil*

The civil engineer will also find the camera indispensable in recording ideas concerning dams, bridges, etc. By photographing such structures and filing the pictures with his notes about the structures, an engineer could in a few years collect much data which would be invaluable to him in design and construction.

Another use which the civil engineer may make of photography is in the recording of failures of members, due either to actual failure tests, or to accidental failures. In such cases as this it would, in some instances, be absolutely impossible for a free-hand sketch to be produced because of the lack of time or because of impossible physical conditions.

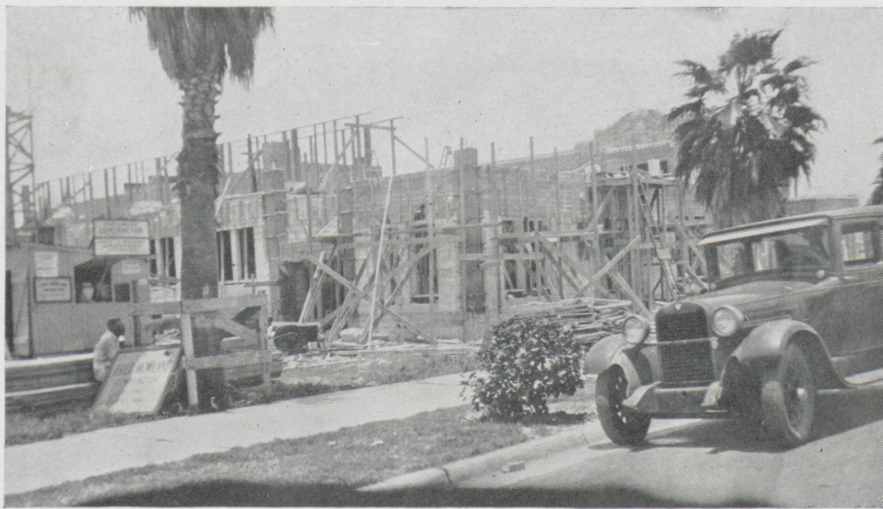
## *The Electrical Engineer's Viewpoint*

Without photography electrical engineers would still be wondering just how alternating currents behave. This uncertainty has been relieved because they have seen pictures which show just what sort of phenomena occur in various alternating current circuits. This is one of the most remarkable developments in the field of photography.

Electrical engineers, as well as all other engineers, will find the camera very useful in recording ideas in design. Photos may be made under even the most discouraging conditions to successfully record the operation of certain machines, as well as to give the general layout of the plants which the engineer may be fortunate enough to visit.

## *Usefulness to the Mechanical*

In this field of engineering, as in the others mentioned, the design is easily, quickly, and accurately recorded by the camera. Of particular interest in this field is the recent development of the x-ray photographic method of testing metallic parts. This method, which



As Used by the Civil

is now generally well known, allows the testing of the members actually used in the machine, instead of one of the members of a lot which was, up until the introduction of the x-ray method, taken as typical of all members and tested to failure. This old method assumed that every piece of one lot was just as good physically as every other piece of that lot; but of course, this was known by experience not to be the case. Consequently, there was always introduced a "factor of safety," meanwhile the engineer prayed that there wasn't some internal defect in a very vital part of the machine which would cause it to part company at a critical time. The x-ray photographic method of testing has largely eliminated this uncertainty of composition.

Micro-photography has also opened up vast stores of heretofore undiscovered facts concerning the structure of metals. Not only has this proved of value to the mechanical engineer, but also to every other branch of engineering.

### *From the Chemical's Viewpoint*

No outstanding application of photography which has not already been mentioned has been applied in chemical engineering, but in the field of chemistry photography is certainly indispensable. It permits the recording of crystalline forms not obtainable in

any other manner. The use of micro-photography has aided materially in the advancement of bacteriological chemistry.

### *Other Applications of Photography*

Although photography applications to engineering are indeed important, it must be remembered that there are many other uses to which it can advantageously be put. These must not be overlooked; however, they will not be considered to any great length in this article. Neither will an attempt be made to cover even in the slightest detail many of the applications of photography which have not been discussed.

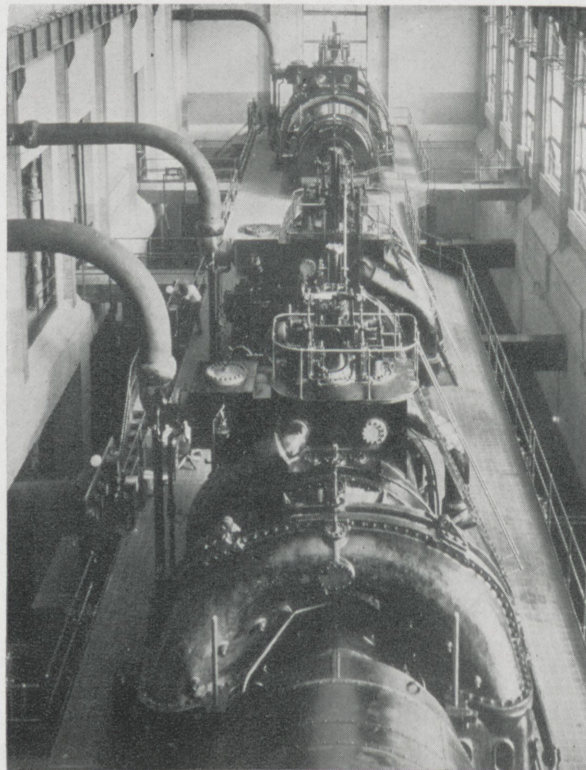
The medical profession is one branch of science which finds photography a very useful tool. Through its ability to discover broken bones and other weaknesses of the human system, the x-ray has made possible the saving of many lives as well as the prevention of many physical deformities. Photography has also proved valuable in recording images of growths and cancerous sores. When similar maladies occur in the

patient of a doctor who has never dealt with such types, he may, by using pictures for identification, orient the type and find the known methods of treatment for such rare cases.

The dentist also finds in photography a valuable aid to his success as he may locate defects of the teeth at an early stage and take proper steps to remedy them before they have become sufficiently defective to cause the patient great pain.

The military department of our country is one of the strongest believers in more and better photographic methods. It realizes the importance of this scientific application in war, but also finds it of use during peacetime to make aerial maps. In war time the army with the best photographic staff has a distinct advantage over its "less-picture-taking" opponent, because it can always secure an excellent idea of its opponent's line of action through the medium of aerial photography.

Another firm believer in the advantages of photography is the department of justice. What chance would it have of ever "getting its man" were it not for photography? It has used the photo as a



The Rose Technic

method of identification of criminals for many years. Recently it began recording finger prints by the use of the camera. Hence, the success of this department depends to a great extent upon this important field of photography, which many of us may not have even seriously considered before.

### *Photography for Pleasure*

In spite of all the applications which have been pointed out, it must be remembered that most everyone usually thinks of photog-

raphy in just two ways when it is mentioned to him. He either pictures in his mind the likeness of "the girl friend" which is at home on the dresser, or he recalls the show which he saw last week.

Without a doubt there is an important place in every one's life for photography for pleasure. We are all familiar with the "snaps" we have taken when on a trip, with the portraits which the photographer has made for us, with the importance which pictures play in the newspapers, and with the en-

tertainment furnished by the movies, so nothing more need be said concerning this type of photography.

The one last thought which this article wishes to convey to you as an engineer is embodied in this question. "Do you secure the best pictures possible when you take them for pleasure, and will you, when the occasion demands, be able to secure those pictures which will aid you in your professional work?"

---

---

# Some General Aspects of Radio Communication

by

John Straw, e., '35

WHEN radio communication is analyzed in a non-technical manner and on a frequency basis, several important principles and distinctions will be observed. With that point of view let us consider first the idea of frequency bands and their relation to communication.

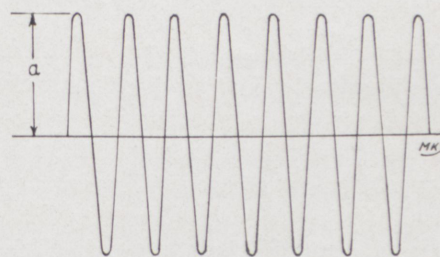
The entire frequency range can be separated into two useful bands. The first is known as the audio frequency band. This band extends from approximately 25 to 16,000 cycles per second, and, as the name indicated, comprises the frequencies to which the human ear will respond. All the sounds of nature that we hear have a frequency somewhere in this narrow range. The lower end of this band corresponds to notes of low pitch, while the higher frequencies will produce notes of higher pitch. The width of this band is slightly different for different people because the frequency response of the human ear is a physical characteristic and will vary with different individuals.

The second of the two bands, which is known as the "radio frequency band", includes all the frequencies from about 16,000 to 60,000,000 or more cycles per second. As the name implies, this range is used for the propagation of radio signals. In actual practice ordinarily only frequencies above 500,000 cycles per second are used in the propagation of radio signals. The reason for this will be explained further on in the article. Such propagation is accomplished by transmitting electromagnetic energy wave through space. This energy is then used to induce radio frequency voltages, in accordance with the transmitted signal, in the antennas of receivers.

Now let us see how radio communication is effected. First, a sine wave of voltage of radio frequency is generated. Figure 1 shows such a wave. If this wave is impressed on an antenna, a signal will be sent out through space. When this signal is picked up by a receiver, the result is merely a whistling note, and, as such, will

not yield an intelligible communication. If, however, the wave of voltage which is impressed on the transmitting antenna is interrupted by some means such as a telegraph key, similar interruptions will occur in the received signal. Thus an intelligible telegraphic communication can be made. This method of communication is radiotelegraphy.

The transmission of speech or music is more difficult. This is largely due to the fact that speech or music consists of not only one frequency but of practically every frequency in the audio range, different intensities and pitches of sound producing and being produced by different frequencies of





different amplitudes and by variations in these frequencies and amplitudes. The wave of voltage accompanying ordinary speech or music is quite complex. However, in connection with the transmission of such sounds, it is only necessary to recognize the nature of the audio wave.

The method used to transmit speech or music is somewhat as follows. First, a sine wave of radio frequency is generated just as in the case of radiotelegraphy (see figure 1). Before this wave is applied to the antenna it is "modulated." That is, the audio frequency variations, complex as they may be, which result from the speech or music to be transmitted are superimposed on the basic sine wave. This is done in such a way that the amplitude, constant and equal to "a" in figure 1, is made to vary in accordance with the audio frequency variations. Needless to say, the resulting wave will be quite complex, but we need not be concerned by that.

Such a wave will induce similar voltage variations in the antenna of a receiver. The receiver then performs operations which are just the reverse of those of the transmitter. First it "demodulates"

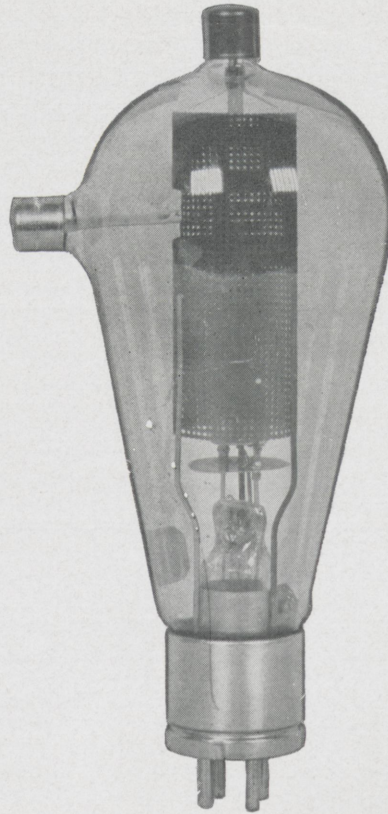
or detects the incoming signal. It, in effect, throws away the radio frequency part of the wave, leaving only the audio variations. Then, by the use of the speaker, it converts these variations back into sounds which are remarkably accurate reproductions of the orig-

inal speech or music transmitted. This whole process is radiotelephony.

From a general standpoint the important feature of the above procedure is the translation of frequency. Radiotelephony is based on the principle of frequency translation, for the audio frequency variations of the speech or music are translated into the radio frequency band for transmission through space. The resulting waves are then re-translated to audio frequency variations, and these in turn are reproduced as sound.

An individual might wonder why all this frequency translation is necessary. Why not merely transmit the audio frequencies and do away with the translations? The answer lies in the fact that the radiation of waves through space varies as the square of the frequency; consequently the higher the frequency the better the radiation of signals. Below about 150,000 cycles per second the radiation of waves through space is practically impossible.

(Editor's note: In other articles to appear in the *Technic*, the transmission and reception of radio signals will be taken up in greater detail.)



Thyatron Tube

---

# Water Supply Engineering Two Thousand Years Ago

by

E. A. Hamilton, c., '35

**I**F we turn back the pages of history we will find that sanitary engineering is no new invention, that sanitation was known and practiced two thousand years ago, and that many engineering feats then accomplished are still the envy of today's engineers. Just as

we study the problem of securing an adequate water supply for our municipalities, so did the Romans study and solve their problems as early as 97 A. D.

In that year Nerva Augustus occupied the throne of the royal Caesars of imperial Rome, and

under this ruler there came to a position of importance Sextus Julius Frontinus—soldier, writer, tactician, surveyor, consul, proconsul, and by the grace of his imperial majesty, Nerva Augustus, sole water commissioner of the City of Rome. In that day the title

of water commissioner was the greatest honor that could be bestowed upon a private citizen. Under Domitian, the preceding emperor, the state was operated by methods similar to those employed by our Tammany. He who paid the most for the privilege received the most water, and the water commissioner certainly didn't lose in the exchange. The nine aqueducts furnishing the water supply of Rome were Appia, Anio Vetus, Marcia, Tepula, Julia, Virgo, Alsietina, Claudia, and Anio Novus. They were in a disreputable condition, and sometimes more than half of the water was stolen from the aqueducts, or bootlegged by rapacious water men. One common practice was to forget to remove the reservoir connection when a grant ran out, and then put in a new one when a new lease was made, thereby permitting twice the legal amount of water to be removed.

Frontinus, upon coming into office, examined the amounts supplied and compared them with the supply received. Careful investigation showed that nearly half of the total supply was either being stolen or had leaked out in transit. He set about cleaning up the situation, and soon had the supply and operation in an enviable condition. Anio Novus, which was extremely muddy, had been allowed to leak into the other aqueduct channels and foul their pure waters. Frontinus examined the source of the water and found that it was being taken directly from the river. He then rearranged the aqueduct so that its source became, instead of the river, the lake directly above Nero's Sublacension villa where the Anio was the clearest. At the upper end of the lake where the stream entered, the water was in a very clear and cold condition; and since the lake acted as a large sedimentation basin, all the sediment was deposited before it reached the other end. The water of Anio Novus, taken from the lower end, reached Rome in a stage of purity exceeding even that of

Marcia, which was fed by clear, cold, mountain streams.

Before the time of Frontinus, whenever any water right ran out, the water was cut off immediately and sold to the highest bidder, whether he lived on the land or not. To Frontinus this seemed unnecessarily cruel, so he interceded with Nerva with such good effect that estates were given thirty days of grace after their water rights ran out. Granted water was granted to certain estates, and by law could not "be carried elsewhere than upon the premises to which it is made appurtenant, or taken from another delivery tank than the one designated in the grant." A grant lasted a lifetime, and was renewable only when "every one of those who received it shall have ceased to remain in possession of the property."

### *Ancient Purification System*

Rome's purification system then resembled in its essential particulars the basic purification systems of today. The aqueducts emptied at intervals into catch basins, as Frontinus so quaintly puts it, "in which, resting as it were from their long run, and taking a new breath, they deposit their sediment." During Frontinus' term of office, the different aqueducts were set off from each other. Each had its own distinct catch basins separate from those of every other aqueduct, and each water had its own set uses. For instance, the water from Marcia, which came from mountain springs in a particularly clear and cold condition, was assigned for drinking purposes, and any one caught using this water for any other purpose was liable to fine and imprisonment. On the other hand, the water from Anio Vetus was assigned to the watering of gardens because its dirty and turgid flow was good for little else.

At one time while his work was running smoothly, Frontinus, like

a true courtier, wrote as follows. "The effect of the care displayed by the emperor Nerva is everywhere felt from day to day by the present queen and empress of the world; and will be felt still more in the improved health of the city, as a result of the increase in the number of private grants; and those who with fear previously drew water unlawfully, draw their supply now free from care, by grant of the sovereign. Not even the waste water is lost; the cleanliness of the city is greatly improved; the air is purer; and the causes of pestilence, which gave the city so bad a name with the ancients, are now removed."

Frontinus then improvised a system of maintenance similar to our public constructions of today. Sections of the aqueduct, both inside the city and out, were let out to contractors, who were required to record in the public records the names of every person employed in maintenance. The state prescribed the number of men to be employed on each section, and the aediles and censors inspected the work at unexpected moments in order to determine whether or not the correct number of men were working, what the quality of work was, and whether or not there might be dishonesty of some other type being practiced by the contractor.

Such was the system of Rome's water supply under an ancient engineer. Its efficiency for its time challenges that of any present day system. The ability and honesty of its supervisor remains unquestioned in a period noted for corruption and graft. We today could be truly proud if we were able to say as he did, "Those who sought the emperor's pardon for their dishonesty after due warning received, may thank me for the pardon granted. But for the future I would wish that it might not become necessary to invoke the law, for it will be necessary to maintain the honor of my office, even at the risk of giving offense."

# THE ROSE TECHNIC



Member Engineering College Magazines Associated

WARREN S. SENTMAN ..... Assistant Editor  
DANIEL OVERHOLSER ..... Assistant Editor  
EARLE B. BUTLER ..... Advertising Manager  
WILLIAM KASAMEYER ..... Circulation Manager

#### Assistants

ROBERT A. AVERITT, J. ROBERT MARKS,  
ALDEN B. FOLEY

DR. PAUL G. HOEL AND MR. HENRY C. GRAY ..... Faculty Advisers  
ALLEN G. STIMSON ..... Alumni Adviser

## Let There Be Light

IN a school which teaches a course devoted entirely to illumination engineering, in which we are taught that better efficiency is obtained and less eye strain occurs in industrial establishments providing adequate lighting, we have drafting rooms, laboratories, and class rooms which are so dim on days of overcast skies that men must quit work because of eye strain and resultant headaches.

The above facts may seem quite inconsistent but, nevertheless, they are true. By a recent test the intensity of light on a drafting table in the civil laboratory was found to be less than 3 lumens, as compared with the minimum of 10 and the desirable 30 or more lumens which are recommended by authorities on illumination. Is it any wonder, then, that the senior civils, who spend 12 to 20 hours per week calculating and drawing in the laboratory, should complain of the bad light? Similar difficulties are encountered in the drawing and machine design rooms.

With no resultant engineering fees to pay and little or no wages for labor, it would seem that the installation of suitable illumination facilities in the school would not be expensive. The results of such

installation would most certainly aid the student. At any rate, the confidence of the student would be increased if the old proverb, "Practice what you preach," were adhered to.

## The Technic

THE writer's attention has been called to the fact that the attitude of the student body toward the writing of articles for the Technic seems to be one of indifference. If not of indifference, at least it has the earmarks of disinterestedness. The Technic is published by the students and alumni of Rose Polytechnic Institute; however, the administrative details of the magazine are in charge of a student staff. The magazine is yours, and as such you should be interested in making it a valuable and worthwhile part of your college life by contributing to its success.

Students are reminded of the fact that the Technic receives a portion of the student fund, therefore it is the duty of the staff to make the best possible use of such funds. However, the publication is not for the benefit of the advertiser, but rather to meet a student need. Inasmuch as it is the only periodical published on the college campus, all news items and articles

are embodied in the Technic.

The articles are written by too small a percentage of the students. As an incentive to the writing of articles, an honor point is awarded to the student who writes an article which is subsequently published.

We are giving the best we can. Are you willing to co-operate?

## Examinations

It is most discouraging to a student to find that his mark on an examination is lower than that of some of his classmates simply because he did not have access to past examinations which contained questions repeated in the one just taken. Some men have access to fraternity files, where examinations in all subjects for several years back are kept, often with their solutions. Other men have older brothers, relatives, or friends who have saved their examinations with the intent of passing them on. Still others have practically no access to old examinations. These men are most decidedly at a disadvantage when placed in competition with men who have worked out or have seen some of the questions in a similar exam given previously. Whereas the former must coordinate theory, method, and calculation, the latter rely almost entirely upon memory. Even though the one is a better student and knows more about the subject, the other often receives the better grade.

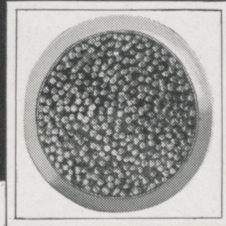
It is not the purpose of this article to condemn the use of old examinations for the purpose of a comprehensive review of a subject, but rather to point out the unfairness of using exactly the same or very similar problems on two examinations. No course can be so well covered by a four hour examination that it is impossible to write another exam without repeating questions.

Why, then, shouldn't we all be given an equal chance by being given an original examination each time? Variety makes life more livable in more ways than one.

300 telephone wires in 1890



300 telephone wires  
in 1935



Above: From an old photo of lower Broadway at John St., New York about 1890. Right: Actual size of 150 pair cable.

Bell System engineers long ago began to work out a way to clear city streets of overhead wires. The first telephone cables were crude affairs—a few wires drawn through a pipe. Contin-

Why not drop in at home tonight — by telephone? For a lot of pleasure at bargain rates, call by number after 8:30 P. M.

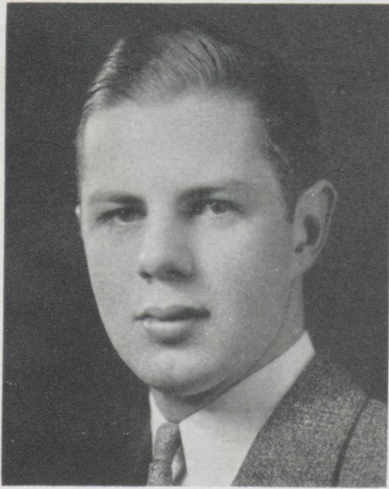
uous research brought forth improved designs, better manufacturing methods, cables of smaller size yet far greater capacity. The cable with the greatest number of wires today—3636—is  $2\frac{5}{8}$ " in diameter.

More than 94% of the Bell System's wire mileage is now in storm resisting cable—one of many developments to improve service.

**BELL TELEPHONE**



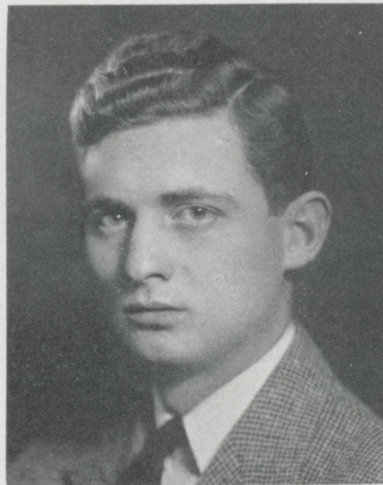
**SYSTEM**



GORDON L. BURT

Tau Beta Pi, Alpha Tau Omega, Blue Key, A.S.C.E. 2-3-4, Executive Committee Rose Show 3, Rose Technic Staff 2-3-4, Business Manager Rose Technic 4, Debate Club 1-2-3-4, Debate Team 1-3-4, President Debate Club 4, Camera Club 3, Rea Scholarship 1-2-3-4, Student Council 4, Honor Man 3.

# MEET THE



EARLE B. BUTLER

Tau Beta Pi, Sigma Nu, Blue Key, Tau Nu Tau, A.S.C.E., President of Class 3, Technic Staff 23-4, Advertising Manager 4, Editor Student Handbook 2, Student Council 3, Rose Show Committee 3, Financial Secretary Student Council 3, Honor Man 3, Intramural Medals 2-3.

WILLIAM C. EYKE

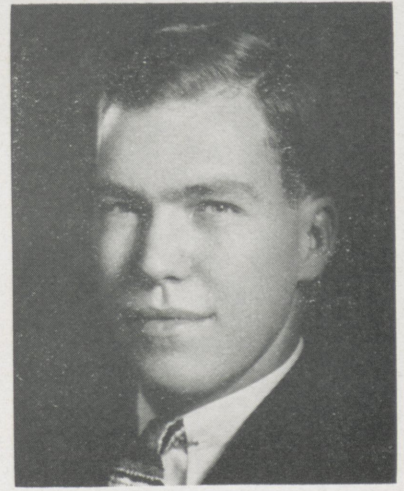
Tau Beta Pi, Alpha Tau Omega, A.S.C.E., Show Chairman 1, Football 2-3-4, Letter Man 3-4, McGregor Scholarship 3.



# SENIORS

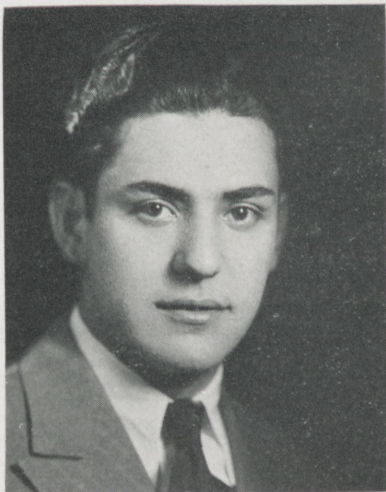
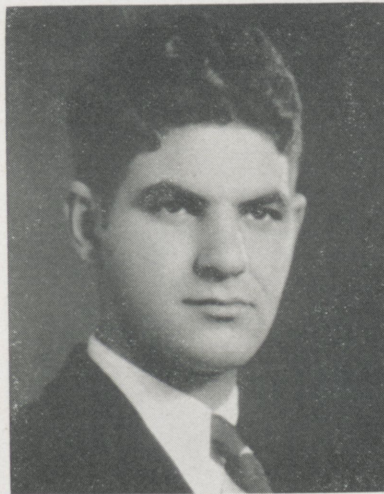
## HARRY H. RICHARDSON

Blue Key, Sigma Nu, Tau Nu Tau, A.S. M. E., Class President 1, Athletic Board 2-3-4, Technic Staff 2-3-4, Sports Editor 2-3-4, Football 1-2-3-4, Captain 4, Basketball 1, Recording Secretary Student Council 1, Glee Club 2-3-4, President Glee Club 4, Honor Man, Student Council 4.



## ARTHUR W. HESS

Tau Beta Pi, Tau Nu Tau, A.S.C.E., Technic Staff 2-3-4, Editor 4, Basketball 1, Letter Man 1, Rifle Club 1-2-3-4, Rea Scholarship 1-2-3, Honorable Mention 3.



## JOHN P. GIACOMETTO

Rifle Club 1, Radio Club 2-3-4, McGregor Scholarship 1-2, 5th Corp Area Award.

# Research and Progress

Edited by Albert V. McEowen, c., '35

## *Super Plywood*

WITH the new year comes a new type of plywood offering many marked advantages over the present product. The new material is fabricated with the aid of a resin glue recently developed. The time of fabrication has been reduced from the former twelve hours including drying time, to about five minutes.

The sheets of wood are unrolled from the logs as usual, cut into size, and placed together in layers with the grain alternately opposed. The new resin binder is applied dry between the layers and the panel is placed in a huge steam press weighing 350 tons. The press has a capacity of sixteen sheets at a time. The panels are pressed individually under pressure of 100 tons between smooth plates which are at a temperature of 350 degrees Fahrenheit. At this temperature and pressure the resin binder is fused with the wood and the plies are practically vulcanized together, resulting in an effective solid piece of wood with the advantages of laminations.

The hot plate method of manufacture results in certain advantages in the finished product worthy of mention. The panels are unusually light because of a low moisture content; the surfaces are unusually smooth from the heat and pressure; and the plies are tightly joined together with the new binder. The new plywood has an exceptional resistance to moisture. This an important property, since it adapts the product to

varied outdoor uses formerly unavailable to this material. In a laboratory test, a sample panel was boiled seven hours a day for fifteen consecutive days, with a cooling period between each boiling, and at no time was the panel removed from the water. Other similar tests were applied, but in not a single case did the binder fail.

Unlike most glues, the new adhesive material does not affect the cutting edges of tools used on it. The resistance of the new panel being the same as an equivalent solid fir board.

The low moisture content of the wood makes the panel lighter in weight, resulting in ease and cheapness of shipping. Advantages claimed for the binder are reduction in grain raising, warping, checking, and shrinking. The new resin binder is made under exclusive processes protected by patent. It was developed by James Nevin, a chemical engineer for the Harbord Plywood Corporation.

## *Powder Metallurgy*

The use of powdered metals has been developed until many commercial applications are possible. This, coupled with the fact that there are about twenty-five different metals available in powdered form, makes the possibilities of such metallurgy quite great.

Bronze locomotive bearings are now produced by mixing powdered metals in the proper proportions and forcing them into molds under great pressure, then heat treating the product to cause it to fuse

properly. A uniformly solid bearing is produced, accurate enough in size that no machining is necessary afterward. Such a process eliminates various cleaning and machining processes usually required by casting methods. There are no gates or vents to be removed, and the product is not rough and dirty.

Solid bars for use in different manufacturing processes have been made by this method. Wire has been made from such bars and has shown appreciably greater tensile strength than that drawn from rods rolled from previously melted metals. The present success of this development indicates that further studies should yield still more valuable results.

## *Fireless Locomotive*

The Navy Department recently purchased, for use in the New York yard, a locomotive that is rather unusual in this country, although the principles involved have been followed for more than forty years abroad. The engine, used for switching only, is a fireless one, meaning that the source of energy is stored as steam and hot water in a large tank on the chassis, and there is no direct heating unit attached. The tank has a capacity of 600 cubic feet, and when fully charged contains 80 to 90 percent hot water and the remainder steam. The initial charging pressure is 165 pounds per square inch, and the water is at a temperature of 373 degrees Fahrenheit. As the stored steam is used, the pressure in the reservoir drops, the surface of the water flashes into steam which draws its heat of evaporation from the water remaining liquid, and the temperature of the water is lowered. The steam in the cylinders has a working pressure of 50 pounds per square inch. Under this pressure the full tractive effort of 18,000 pounds can be exerted. A reduction valve prevents excessive pressures from being admitted to the cylinders. The engine in use by the Navy Department, with a capacity and operating pressure as noted, can develop some

44 horsepower hours, which means approximately four hours of normal switching work.

A unique point to be found on this particular locomotive is the reduction gear system used between the steam engine and the drive wheels, resulting in the use of smaller cylinders to develop the full tractive force at the lower limit of the operating pressures. This method, utilizing a gear ratio of about four to one, provides a smooth tractive effort at all times and eliminates to a high degree the tendency for the wheels to slip under heavy loads. The smaller cylinders can be mounted close together under the reservoir, making several economies possible. Radiation areas are reduced, the steam pipe lengths are reduced, lagging of the cylinders is much easier, and the clearance of the locomotive is increased. The resulting higher piston speeds give a more complete expansion of the steam and result in higher thermodynamic efficiency in the cylinders. Steam consumption, from actual road tests, is from 26 to 30 pounds of steam per horsepower hour.

The designers employed another distinctive feature when they used roller bearings at all points of support, and the reduction in rolling

resistance is very noticeable.

This type of locomotive is quite useful and economical in certain fields, such as the present application, or any other location where a large steam generating plant is available, and the operations are confined to switching, where the ratio of hours of actual pulling to hours of standing by is about one to four. In these cases it is possible to charge the engine in the morning and again at noon, and the day's work can then be handled without any difficulty. About a half hour is needed for charging the reservoir, and by performing this operation at the hours mentioned, it is possible to operate without appreciable interruptions. The steam plant also gains a good consumer at off-peak hours.

*Visit the Toasty Shop*



22 South 7th St.

## Archer & Evinger

Radio and Electrical Service

Cornell-Dubilier Condensers

Carter Volume Controls

Microphones

Raytheon Tubes - All Types

*Discount to Radio Club  
Members*

1348 Wab. Ave.

B-7757

### BOWLES & STAFFORD

"REBUILDERS OF SHOES"

Free Delivery to Dormitory

108 North Seventh St.

Call C-1654

## Weldele & Wright CLEANERS

1529 Wabash Ave.

Phone C-2154

NECKWEAR, GLOVES, HOSIERY  
LEATHER NOVELTIES,  
MEN'S WEAR

**FOULKES BROS.**

11 North 6th St.

## HEINL'S

We can take good care of all  
your flower needs.

**FRED G. HEINL**

129 So. 7th St.

## VIQUESNEY'S

*"The Fountain Pen Store"*

C-1344

815 Ohio St.

## FISCHER'S

*Auto Supply Stores*

329 Ohio St. - 901-3 Wab. Ave.

*in Terre Haute*

14 West National

*Brazil*

All Matters Relating to

*Patents and*

*Trademarks*



## HOOD and HAHN

ARTHUR M. HOOD, Rose '93

H. B. HOOD, Rose '24



1001 Hume-Mansur Building

INDIANAPOLIS, IND.



# FRATERNITIES



## Blue Key



The Rose Tech chapter of the national honor fraternity, Blue Key, held its annual dance at the Rose gymnasium on Friday evening, March first. Leo Baxter and his band provided the music. The dance was attended by 85 couples. The proceeds from the dance enabled the chapter to add twenty or twenty-five dollars to the improvement fund.

Honor guests were Dr. and Mrs. Prentice, and Dr. and Mrs. Howlett, and chaperones were Prof. and Mrs. Wischmeyer and Dr. and Mrs. Hoel.

It has been the aim of Blue Key to provide and furnish a student recreation room in the main building. Through previous dances it was enabled to get a room and to provide it with ping pong tables. The proceeds from the last dance are also to be applied to the recreation room fund.

## Theta Kappa Nu



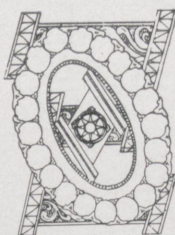
On February 22, the Theta Kappa Nu fraternity honored its newly pledged freshmen with a dance at the chapter house. Music was furnished by Joe Lewis and his orchestra. Many of the alumni returned for the dance. Professor and Mrs. Stock and Professor and Mrs. Sousley were the chaperones.

On March 8, an open house was held at the chapter house. The eve-

ning was spent in dancing and games.

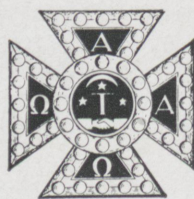
Indiana Gamma takes pleasure in announcing the formal initiation into Theta Kappa Nu, of Johnathon Sonnefield, Alechi Garzolini, and Robert Bond, all of the class of '37.

## Theta Xi



The members of Theta Xi are making plans for the annual Founder's Day Celebration. The celebration this year will be held in Indianapolis, Indiana, on April 27. The Theta Xi Club of Indianapolis will be the host for the occasion. Seven Theta Xi Chapters at the Universities of Illinois and Purdue will also be present for the affair.

## Alpha Tau Omega



About 30 members of the Alpha Tau Omega chapter at Rose attended the annual state banquet and dance at the Lincoln Hotel in Indianapolis on Saturday, March 9. Between courses of the informal stag dinner reports of the activities of the chapters at Indiana, DePauw, Purdue, and Rose were made,

After a round of fraternity songs the banquet ended just in time for the members to dress for the formal dance. This was also held in the Travertine room on the top floor of the hotel. Dick Cisne and his orchestra from the University of Illinois played for the dance and

also furnished music for the dinner.

Alpha Tau Omega recently held a formal pledging ceremony for Russel Kerr, c., '35, of Indianapolis.

## Sigma Nu



Beta Upsilon of Sigma Nu held its annual pledge dance at the fraternity house on Friday, February 15. Leo Baxter and his orchestra supplied music for the occasion. Everyone who attended had an enjoyable time, particularly the pledges, in whose honor it was held.

Pledges Hayes, Alexander, Fuller, Vandersaar, and Wheeler were formally pledged into Sigma Nu Fraternity on Sunday, February 17.

Arthur Wood attended the state interfraternity council meeting at Bloomington on Saturday, February 23. This meeting of representatives from all of the fraternal chapters in the state was held so that the delegates could compare their ideas on rushing, training of pledges, and on other items of importance to a well organized fraternity life.

Robert Roach, who graduated with the class of 1931 and who is now associated with the Detroit Edison Co. at Detroit, was in Terre Haute for a short visit over the week end of February 23.

## Tau Beta Pi



Indiana Beta of Tau Beta Pi, takes pleasure in announcing the election of the following men: William S. Pratt, Harold Reintjes, and Virgil E. Shaw of the class of '35; and Charles MacDonald and Louis Duenweg of the class of '36. The local chapter is laying plans for a school dance to be held in the near future.

# SPORTS

Edited by  
Harry Richardson, m., '35

ROSE ended its third annual intramural basketball season on Tuesday, February 26, when the Military team beat the combined Electricals in the play-off for the title. The Militarists won the league schedule and the Electricals won the annual "survival of the toughest" tournament.

The season as a whole was considered a huge success by player and coach alike. Not one game during the entire season was forfeited. However, due to the semi-annual student eliminations at the end of the first semester, it was found necessary to combine the two teams in both the electrical and mechanical departments into two teams; one from each department instead of two. This condition changed the standings slightly as some of the games already played had to be cancelled for obvious reasons. However, the relative standings of the departments remained the same, the percentages being the only thing affected.

From the table below a peculiar situation can be noticed. The Electricals won not one game during the league schedule out of eleven played, and still they won the tournament and earned the right to play the Militarists for the league title and the school championship. It can also be noticed that the Mechanicals and Electricals played twice as many games as any other team. This was caused by the fact that there were two teams from each of these departments until the last of the season at which time they were combined with each other.

The other side of the Rose basketball season also turned out very satisfactorily. The Rainbow

A. C., previously referred to in this column as the Rose All Stars, had a very successful season. The team is composed of men from all departments of the school and represent a squad which would have been had there been intercollegiate basketball at Rose this season. The Rainbow A. C. played quite a number of games with independent teams in the Wabash Valley, playing only one team twice, that team being the team which was victorious in the first contest. Incidentally, they were beaten rather handily at the second encounter. The squad finished up its season with a home and home agreement with the Greenup, Ill. Independents who were defeated in both games by fairly wide margins. The Rainbow A. C. played a total of sixteen games during the season, winning fifteen and losing one. They scored a total of 537 points for an average of 35.7 points per game while their opponents scored a total of 241 points for an average of 16.2 points per game.

## League Standings

Team	Won	Lost	Pctg.
Military .....	4	0	1.000
Chemical .....	5	2	.715
Mechanical .....	6	4	.600
Civil .....	4	3	.572
Electrical .....	0	11	.000

In the intramural class of athletic activities there are also handball and ping-pong. A large ping-pong tournament is now in progress, both doubles and singles, with all of the entrants very dark horses as far as this column is concerned. Interest is running very high with an unusual amount of boasting, especially on the part of some of those not entered in the tournament. The handball tourna-

ment is also running off very smoothly although there does not seem to be such a popular interest in the game. However, in spite of Dr. White's wild protests, the game is inciting a high interest with a certain group of the student body.

## Spring Football

Rose has started its annual spring football practice. The first call on Tuesday, March 5, gathered some 29 aspirants for gridiron fame. Although nothing much has been done at the present writing, Coach Brown is of the opinion that the work this spring is going to be of a more serious and fundamental nature than it has been in the past. Nine lettermen answered the call and gave notice to all that nine positions were going to be hard to get.

DRINK  
*Coca-Cola*  
IN BOTTLES

**WALK  
OVER  
SHOES**

For Men Represent the  
Best There is in Shoe  
Making and the Price is  
Right in Every Instance.

Men's Shoe Prices  
\$4.00 to \$10.00

**CHENEY'S  
Walk Over  
Boot Shop**  
659 Wabash Avenue

# Alumni

Edited by  
Jay F. Hall, e., '35



## Obituary

Uhel Ulery Carr, one of the most prominent citizens of Monongahela, Pa., and for 19 years General Manager of the Diamond Machine Company, died February 10 after an illness extending over a period of three months.

Mr. Carr was born in Terre Haute in 1875. He received his early education in the local public schools, after which he entered Rose. He was graduated in the class of 1896 with the degrees of Bachelor of Science and Master of Science in Electrical Engineering. After leaving Rose he secured employment successively with the Pennsylvania Railroad, Heyl & Patterson, the Eagle Iron Works, the Monongahela River Consolidated Coal & Coke Company, and the New River Company.

In 1916 Mr. Carr was made General Manager of the Diamond Machine Company, and took up his residence in Monongahela. Until the beginning of his last illness he had been in active management of this company, and had taken an active part in the civic and social activities of that community.

He was a member of McDonald Lodge No. 103 F. & A. M., American Society of Mechanical Engineers, Engineers Society of Western Pennsylvania, and the Monongahela Valley Country Club. His religious affiliations were with the First Presbyterian Church of Monongahela.

Mr. Carr is survived by his widow, Mrs. Lena Griffith Carr, his daughter Helen, his two sons, John and Robert, and three grandchildren.

## Here and There With the Grads

'97 James B. Haney, Captain of the Ordinance Department of the United States Army, is now stationed at the Ordinance Depot at Manila, P. I.

Roger Newbold is now living at 1533 Ocean Ave., Santa Monica, California.

'03 Marion W. Blair has been taking a short course at Iowa State. Recently he read a paper before the Iowa Manufacturers of Sewer Pipe in which he discussed a new process of manufacturing known as a de-airing or vacuum process. Mr. Blair reports increased activity in the line of ceramics, refractories, etc.

'15 Maurice V. Hegarty is with the Jamaica Water Supply Co. in Jamaica, New York.

'21 William H. Merry is U. S. Storekeeper-Gauger of the Alcohol Tax Unit in the Internal Revenue Bureau in Terre Haute.

'28 John I. Mendenhall is with the Du Pont Dye Works, and is now a Supervisor. Prior to this he was a Junior Supervisor.

'31 Frederick W. Scott is now employed by TVA.

'32 Paul F. Froeb has a position with the Elwell-Parker Electric Company of Cleveland, Ohio.

'33 Frank Crawford is now working for Claude E. Cox, Inc., Detroit, Michigan.

'34 Elvin L. Everett is employed by TVA.

## Marriages

Eugene H. Scofield of Peoria, Illinois, recently married Ruth Modesitt of Cory, Indiana. The wedding ceremony took place at Waukegan, Illinois.

Mr. Scofield graduated from Rose in 1930, and since his graduation has been employed with the Illinois state highway department. Mr. and Mrs. Scofield are living in Peoria, Illinois.

Charles Lotze was very recently married to Miss Clede Lovelace of Terre Haute.

Mr. Lotze also graduated from Rose in 1930, and for the past five years has been employed by the Indiana Bell Telephone Company. He has been located in Vincennes, Indiana, since the first of this year.

## New York Rose Tech Club Holds Meeting

EVERY year during the ASME convention in New York, the New York Rose Tech Club gets together to greet the President of Rose Polytechnic Institute. This year about thirty of the graduates from in and around Metropolitan New York turned out for the Rose Tech Club Dinner, which was served in one of the private dining rooms of the Advertising Club of New York.

Dr. Prentice, who was then presented, gave a very interesting account of events of the past year at Rose. After this he answered questions the nature of which showed the real interest in engineering education among the New York group.

Those present were:

Aldrich, Craver, Derry, Harris, '91, Barnes, Orth, Probst, Hubble, Toner, Watson, Boehm, Harris, '31, Denny, Blair, Pirtle, West, Schweers, Loehinger, Cash, Ferris, H. W. Uhl, Gosnell, Willison, Mory, Kelsall, Holding, Butler, '06, Rein-king, Haupt.



## WILL YOU BE READY ?

Industry is awakening. Already it is demanding technically trained men, men with engineering educations. Will you be called? Will you be ready?

Since 1874 Rose Polytechnic Institute has trained men for Industrial leadership. Well planned courses in Civil, Chemical, Electrical and Mechanical Engineering are offered. For complete information, write to the registrar.

**ROSE POLYTECHNIC INSTITUTE**  
Terre Haute, Indiana

# Campus Activities

Edited by  
Carl Wischmeyer, e., '37

## Radio Meeting

ON Friday evening, March first, the Wabash Valley Radio Club held a meeting in the physics lecture room at Rose. Mr. T. A. Hunter of the Physics Department presided. The program included a very interesting talk and demonstration on "Impedance Matching" by John Straw and Paul Reedy, two seniors at Rose. The meeting was well attended by more than fifty amateurs and short wave fans from Terre Haute and surrounding towns. Following the student demonstration, Mr. Hunter demonstrated a modern communications receiver, pointing out the advantages of the application of the quartz crystal for an extremely high degree of selectivity. The club voted to hold its next meeting at Rose, at which time the method of determining sensitivity, selectivity, and fidelity curves will be demonstrated. All amateurs and others interested in radio are cordially invited to attend. There is no admission charge.

## A. S. M. E.

ON February 19, the student branch of the American Society of Mechanical Engineers held a meeting at which Mr. Robert G. Laatz, '32, gave an interesting educational talk on Panama. John Loman, student chairman, presided at the meeting.

## Code Lessons

DURING the past winter Mr. T. A. Hunter of the Physics Department conducted a series of code lessons through his station W9NBZ. These lessons were re-

broadcast by W9BDT, also of Terre Haute. The purpose of the broadcasts was to assist radio fans in learning the code in order that they might fulfil this requirement for an amateur radio operator's license. In response to the lessons, Mr. Hunter received over one hundred letters thanking him for the service he rendered. In the number of letters received Indiana led with thirty-four, Ohio was next with twenty-six, and Illinois was third with twenty-five. Other states in order of the number of letters received were: Michigan, Wisconsin, Mississippi, Pennsylvania, Tennessee, Missouri, Iowa, North Carolina, Kansas, New York, West Virginia, Oklahoma, Minnesota, Kentucky, and Arkansas. It is of interest to note that W9NBZ is one of the few remotely controlled amateur radiophones. Mr. Hunter has his communications receiver, pre-amplifier, and microphone all located at his apartment. By means of a single pair of telephone wires he is able to turn the transmitter off and on and to transmit speech to the transmitter, which is located in the Physics Department at Rose. The microphone is of the condenser type with a three stage amplifier built in the head. It is connected to a booster amplifier, which puts the amplified voice current out over the telephone line to the transmitter, where a correcting network compensates for distortion in the line. The speech then enters the modulation system of the transmitter, which consists of push-pull 250's, driving a pair of 203A's in class B. The radio frequency end of the outfit consist of a 47 crystal oscillator, a 46 first buffer, push-pull

210's, a second buffer, and push-pull 203A's class C amplifier. The antenna is a 264 foot Zepp with quarter wave feeders. The input power to the final stage is approximately four hundred watts. W9NBZ operates on a frequency of 1830 kilocycles.

## Camera Club

THE annual competition is on! The contest committee recently announced the rules for the 1935 club contest, which are as follows: The contest will run until May third. Any member of the club may enter as many photographs as he wishes. Either contact prints or enlargements up to eight by ten inches are acceptable, but all processing, including developing and printing, must be done by the entrant. Only campus and student activity scenes are eligible.

The Rose campus and classes afford many excellent subjects. Since the darkroom facilities are somewhat limited, it is suggested that whenever possible the entrant submit his photographs as early as possible. Although the prizes have not yet been announced, it is certain that they will be well worth having. The appropriation for prizes this year is twice that of last year. The policy of the club this year is to award a larger number of prizes than ever before, thereby increasing everyone's chances of winning a prize. Prizes will be placed on display soon. Remember, it is not too late to join the Camera Club and enter the contest.

## A. S. C. E.

On February 19, at a joint meeting in Indianapolis of the Indiana Engineering Society and the Indiana Section of the American Society of Civil Engineers, R. L. McCormick, Professor of Civil Engineering, was elected vice-president of both organizations. Rose students and faculty congratulate Professor McCormick on the honor that has come to him.

## Rifle Club

THE last scheduled match for the Rose Rifle Team was held during the week of March eleventh to sixteenth. Results of matches fired to date are as follows: week ending February ninth, University of Iowa 1350, Rose 1308; Alabama Polytechnic 3700, Rose 3359; week ending February sixteenth, North Dakota 3695, Rose 3401; Rose 1777, University of Kentucky 1746; week ending February twenty-third, South Dakota 3466, Rose 3420, New Mexico 3376.

The team score for the Fifth Corps Area Intercollegiate Match was 7227 out of 8000, while for the Society of American Military Engineers Trophy it was 3374 out of a possible 4000. The returns from

these matches have not been received as yet. The scores this year are, however, slightly higher than those of last year. It is felt that Rose men made a very creditable showing in these competitions.

Matches with Washington University of St. Louis, the University of Alabama, the University of Missouri, and Polytechnic Institute of Brooklyn have not been fired. The William Randolph Hurst Trophy Match also remains to be fired.

### Rose Polytechnic Students

*Who Like to Save Money  
Always Buy Their Shirts,  
Neckties Underwear and Other  
Furnishings in Our  
MEN'S SHOP!*

1st Floor — West Entrance

### The Root Store



To the

## Men of Rose

*May we call  
attention to our*

## Complete Printing Service



*Rapid accurate  
execution of your  
printing requirements  
at reasonable prices*



## Moore-Langen Ptg. & Pub. Co.

140 North 6th St.  
TERRE HAUTE, IND.

JUST CALL C-4381

*Now is the Time to Send In  
Your Spring Suits*

**Ermisch, My Cleaner**

206 N. 3rd

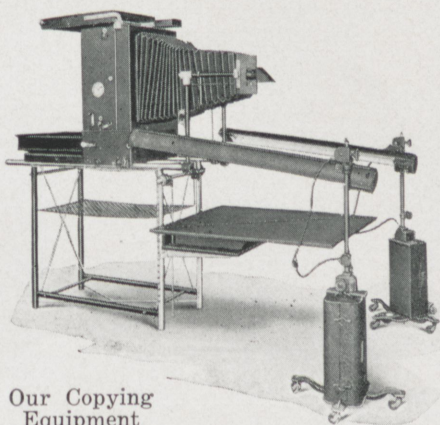
C-4381

## Columbian Laundry Company

*"The  
Soft Water  
Laundry"*

1112 Wabash

C-1301



Our Copying  
Equipment

### ENGINEERS

We reproduce tracings, plans, blue prints, drawings, sketches — in fact anything drawn, typed or printed.

### PHOTOSTATS

Are economical faithful reproductions of your originals. Write for prices.

*Service by Mail*

**Terre Haute Engraving Co.**  
Terre Haute, Ind.

*Engravings for all  
Printing Purposes*



Edited by  
Edd A. Coons,  
Ch., '37



## SPASMODIC IRRELEVANCY

"Just between you, and me, and the lamp post, what do you see in that girl?"

"Not a thing. But with the girl between me and the lamp post, well, that's a different story."

In Russia there is a hotel with four thousand rooms and only one bath. Most uncanny.

"You're a very bright boy; is your brother apt, too?"

"Sure. He's apt to if he gets the chance."

"Money," said the Cornfed Philosopher, "is like ice; the hotter the time, the sooner it's gone."

—Indianapolis Journal.

Mother (entering unexpectedly): "Well, I never!"

Daughter: "Oh, but mother, then how did you catch father?"

"I pulled a good one that time," remarked the farmer as he finished milking the cow.

Newman was thumbing his way into town, and Blair pulled up beside him badly loaded down.

Newman: "Any more room on the ark?"

Voice from the Rumble: "Yes, we have only one louse aboard, climb in."

Father (hoping to force confession from thirteen-year-old son): "I'd like to know what young smart aleck with short pants dropped a cigarette on the upholstery of the new car?"

Son: "Aw, Dad, it was just an accident, sis didn't mean to."

—Spectator.

Did you ever notice that ducks walk as if they had just gotten out of a rumble seat?

*I asked her to marry me.*

*"Go see papa," she said,*

*She knew that I knew that her papa was dead,*

*She knew that I knew what a life he had led,*

*She knew that I knew what she meant when she said,*

*"Go see Papa."*

Station Attendant (as car drives up): "Juice?"

Motorist: "Vell, vat if ve are—don't ve get no gas."

—The Canadian.

Last week I saw several Rose men, who have been raving about how beautiful their girls are, stand in line two hours to see a burlesque show. Do I believe the raven? Nevermore.

"I'll put the motion before the house," said the dancer as she glided out on the stage.

Somebody had a girl friend who collected antiques. Recently she acquired a horsehair chair; and now she knows why her grandmother always wore six petticoats.

Builder-upper: "We're going to give the bride a shower."

Breaker-downer: "Count me in, I'll bring the soap."

Whose girl reminds you of the new Pontiacs; lots of fancy trimmings outside, but nothing under the hood?

Sailor: "If this storm continues, I'm afraid we will have to heave to."

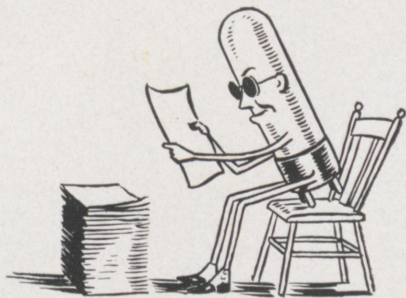
Landlubber Lady: "Oh my, what a vulgar way of saying it."

I guess the women have given in at last because I saw a sign down town which said "Ladies Ready to Wear Clothes."

Political Speaker: "I do wish you'd be a little quieter in the back of the auditorium, I can hardly hear myself speak."

Voice from rear: "Don't worry you ain't missing nothing."

# G-E Campus News



## GLASSES FOR ELECTRIC EYES

Electric eyes are wearing colored glasses and doing a new job. As a result of strict NRA code requirements, the paper industry had to find a rigid means of classifying different qualities of paper. The Institute of Paper Chemistry found that as far as white book papers were concerned, the percentage of light they reflected was an indication of their quality.

The General Electric general engineering laboratory built the necessary device—an instrument which relies on the scrutiny of two phototubes in series to measure the coefficient of reflection. This is an exceedingly delicate task, as the matter of a small percentage of reflectivity determines the price and quality of a paper.

Here's where the glasses come in. To do certain jobs right, the electric eyes had to don different colored glass screens in the form of a filter and lens arrangement. It wasn't that they were getting old; they just needed a little assistance.

J. L. Michaelson, Northwest Missouri State Teachers College, '28, is G-E engineer in charge of building these instruments.



"GE-1000"

When, after a two-day search, a rescue plane finally located the lost transport plane which "mashed down" on a lonely Adirondack peak a couple of months ago, General Electric radio engineers rushed an emergency portable short-wave radio station into the mountain country to help in co-ordinating land and air rescue operations. The disabled ship

was in the center of a wilderness, miles from the nearest means of communication. The radio expedition, however, managed to set up its equipment in a cabin at the end of a one-track automobile trail, only four miles from the scene of the mishap. There, designated as station "GE-1000" at the request of the airline operators, the equipment was used as an emergency unit in the airline's radio system. The General Electric engineers co-operated in communicating with the planes that guided the rescue parties toward the stranded fliers. They also helped send back news of the rescue, directly to owners of short-wave receiving sets, and through a rebroadcast by WGY, the General Electric station at Schenectady, to other listeners.

W. J. Purcell, chief engineer of WGY; W. R. David, U. of Kentucky, '19; E. H. Fritschel, Iowa State, '26; G. W. Fyler, Yale, '29; R. H. Williamson, Iowa State, '28; R. W. Orth, Minnesota, '30; G. M. Brown, Washington State, '29; and R. A. Lash, Ohio Northern, '29, comprised the General Electric radio expedition.



## TURBINE BIOGRAPHY

A turbine can now write its own biography, with the aid of recording instruments recently developed in the General Electric general engineering laboratory.

These sensitive devices were developed for the supervision of large turbines from a point remote from the scene of operation. The instruments measure and record shaft eccentricity, bearing vibration, shell expansion, and interference of rubbing or rotating parts. They provide the operator with an indication and a permanent record, on paper, of mechanical performance throughout the starting period and subsequent running time.

C. D. Greentree, Alabama Poly, '28; A. V. Mershon, Pratt Institute, '13; and M. S. Mead, Case School of Applied Science, '23, of the General Electric general engineering laboratory, worked on the instruments.

96-130DH

**GENERAL**  **ELECTRIC**





*-take it from me*  
Chesterfields are Milder

*-take it from me*  
Chesterfields Taste Better

