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Rose Technic Staff
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The Rose TECHNIC

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MONTHLY PUBLICATION OF THE STUDENTS
OF ROSE POLYTECHNIC INSTITUTE

OCTOBER
1928

VOL. XXXVIII TERRE HAUTE, IND. NO. 1

MEMBER OF ENGINEERING COLLEGE MAGAZINES ASSOCIATED

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Headquarters Sales
University of California '23

MAX KENNEDY
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Control Engineering
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Motor Engineering
University of New Zealand '24

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Contract Adminis ration
Westinghouse Technical Night School '28

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General Engineering
Pennsylvania State '24

YOUNGER COLLEGE MEN
ON RECENT WESTINGHOUSE JOBS

Helping Philadelphians gain an hour a day

Where do young college men get in a large industrial organization? Have they opportunity to exercise creative talent? Is individual work recognized?

PHILADELPHIANS who use the new Broad Street Subway now travel the seven miles from Olney Street to South Street in less than 20 minutes; a trip that formerly took 45 minutes. There is an extra hour of freedom every day for those who use this new route to travel to and from business.

The operating conditions imposed on cars by a rapid transit subway system of this kind are unusually severe and require careful and special design of the electrical equipment. The 150 modern subway cars, 67 feet long, powered by two 210-horsepower Westinghouse motors and controlled by Westinghouse equipment, that operate in this subway are a notable achievement in electrical engineering. Westinghouse takes pride in the fact that it was called on to furnish this equipment.

Big jobs go to big organizations. Westinghouse attracts young men of enterprise and genius because it daily provides opportunities that smaller corporations can seldom offer.

The Broad Street Subway was built by the City of Philadelphia at a cost of more than $100,000,000. The 150 cars that serve this subway have motors, control, switch panels, fans and battery charging equipment designed, built and installed by Westinghouse. The story of some of the conditions facing the engineers on this job, and how they were overcome, may be found in an article in Electrical Railway Journal for June 9, 1928.

Westinghouse

THE ROSE · TECHNIC

PVBLISHED · MONTHLY · BY · THE · STVDENTS · AND · ALVMNI · OF · ROSE · POLYTECHNIC · INSTITVTE · · · ·

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"Why Do Men Fail"

"Ninety-five per cent of those who go into business fail."

"The 20,267 failures of 1927 in the United States involved liabilities of $653,000,000 plus, or, in seven years, four and one-half billion dollars on the wrong side of the ledger.

"For that much money we could fight quite a sizable war, especially if we did not not loan too much money. We could put concrete highways through every county in the United States and have enough money left to build water power plants to light them. With that sum we could create a merchant marine that would be a whiz; hire enough judges, policemen and witnesses to stop bootlegging; put sideboards on the Mississippi; straighten the kinks in the distribution systems."

"Why do men fail?"

*"Men fail because they do not think. They operate by rule of thumb. Their heads have features on the front and hair behind and ears east and west, but nothing inside but faith, hope and charity. * * * * * *"*

The Broadening Field of Engineering

By Frank C. Wagner, Pres. Rose Polytechnic Institute

IN years past an engineer was considered as little more than a high class mechanic. When engineering was being considered by colleges and universities as a course worthy of standing alongside of the liberal arts college and schools of law and medicine, many college professors looked down upon it. The field of the engineer was circumscribed. He was expected to do the detail work of making plans for mechanics and laborers to work by and that was all. A large part of the work of the world was done according to established methods and needed no enginereing.

Gradually at first, later more and more rapidly, machinery was developed to take the place of hand labor. The gathering of men into large cities brought new problems of transportation, water supply, sewage disposal, gas and electricity distribution. The engineer became more and more important to the business world.

New discoveries in science brought new opportunities for their application to the use and benefit of mankind. The telephone, the radio, the X-ray tube, the automobile and the aeroplane are familiar examples.

The methods of the engineer have brought to the great mass of people a degree of comfort and luxury formerly unknown. The use of th epower of a machine to replace animal power and man power has resulted in an enormous increase in the productivity of a workman. One of the causes for the great advance in weath of the United States compared with the rest of the world is the much greater amount of power used per workman. What is done elsewhere by hand labor is here done by a machine—guided, it is true, by a man, but accomplishing many times more work than the man could possibly do by himself.

All this has resulted in changes that are not confined to the field of engineering itself. Business organization has been profoundly influenced by the competition that has resulted from the increased productivity. Not simply have concerns within an industry competed with each other, but now one industry organizes to compete with another industry. It is no longer a question of whether a man shall buy this make of automobile or the other, but it is a question whether he shall buy an automobile or furniture for his house. Manufacturers of Portland Cement get together and advertise the merits and uses of Portland Cement as opposed to other building materials. The Ice Dealers association puts on a campaign urging increased use of ice.

We have the spectacle of great prosperity in some lines of business and stagnation in others. We have thousands of men unemployed while others are enjoying the highest wages in the history of labor. Evidently something is not right in the economic world.

When these problems are carried to the Government at Washington, it is usually by some special interest seeking favors for itself. The questions are decided more by the power of persuasive eloquence than by a full consideration of the merits.

We may content ourselves with the thought that, if each interest purshes for itself, i nthe long run things will about balance. This may be so, or it may not. In any event there will be many a hard knock for some people and must lost motion in the economic life of the nation.

In the selling of machinery it is no longer considered good practice to overwhelm a customer with eloquent description of the merits of a machine and persuade him to buy contrary to his need and judgment. Rather, the good salesman will study the needs of his customer and will try to meet those needs in the best manner possible. For this reason manufacturers of machinery seek engineering graduates for their sales fore. By supplying the customer with the best available machine for his purpose the manufacturer has gained a friend and prepared the way for future sales.

The engineer needs first of all to be ready for every technical problem that presents itself. Either he must be able to solve each of these particular problems himself or have knowledge enough on the project so that the solution of the problem is within his reach. In other words the field of the engineer is broadening in its scope, every additional problem being different from the last, thus enriching the knowledge of the engineer.

The wise purchaser does not decide from whom to buy by considering the eloquence of the salesman. He tests the quality of the goods offered or the adaptability of the machine to his use in a cold blooded scientific manner. If a new machine is offered with the inducement that it is more efficient than the one he has, he sits down and calculates whether the savings claimed will balance the interest and depreciation on the increased investment and still produce a saving.

The application of these principles of exact calculation and quantitative investigation to business management has given rise to courses of so-called Commercial Engineering in some of our technical schools. Students are trained in the fundamental subjects that incuclcate habits of accurate quantitative reasoning an dthen specialize along lines of

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Humidity

By Carl Wischmeyer, Professor of Mechanical Engineering

HUMIDITY is a term with which most of us are familiar as applied to hot summer weather. But to the heating engineer it is of even greater importance in connection with winter weather. The feeling of being comfortable, neither too hot nor too cold, depends not only on the temperature of the air, but also on its moisture content. On a summer day the temperature of the air in a room may be seventy degrees and yet we feel uncomfortably warm. In the winter, with the same temperature in the room, we may feel decidedly cool. In summer we say "It isn't the heat, it's the humidity." We may very well adjust this statement to winter conditions by saying "It isn't the cold, it's the lack of humidity."

In order to be comfortable the temperature of the air should be somewhere near seventy degrees, and the moisture content should be such as to give the proper rate of evaporation of bodily moisture. If the air is damp, as it often is in summer, the moisture of the body does not evaporate, hence the body is not cooled by evaporation, and we feel hot and sticky. If the air is dry, as it too often is in a heated residence, then the moisture evaporates too rapidly and we feel cool.

"Throw that thermometer away, I know it is warmer than that." And the vice-versa is likewise true. Keep the thermometer—but look to the humidity. Therein lies the secret of the comfort or displeasure of many an atmosphere, yet many are relatively ignorant about the matter. This article intends to enlighten you on the conditions of humidity.

It takes heat to evaporate water, and whenever moisture of the body evaporates, it takes heat from the body. This is nature's method of temperature control. When we exercise or do physical work, this tends to heat up the body. Immediately we begin to perspire more freely, and the evaporation of perspiration keeps the body temperature normal.

There are two ways of expressing the moisture content of the air, relative and absolute. Absolute humidity is specified by stating the weight of water vapor contained in one pound or one cubic foot of air. This is usually expressed in grains per pound or grains per cubic foot. Relative humidity is expressed as per cent. of saturation. Air at a certain temperature can hold only a definite maximum amount of water vapor, and when it contains this maximum amount it is saturated. The capacity of air for absorbing water vapor depends on its relative humidity. Saturated air can hold no more moisture, therefore water cannot evaporate in such an atmosphere. The further removed from saturation the air is, the more rapidly will water evaporate. The question of bodily comfort, dependent as it is upon evaporation of bodily moisture, is entirely one of relative humidity, not of absolute humidity. When the relative humidity is 100%, that is, when the air is saturated, perspiration cannot evaporate and the air is too moist for comfort. When the relative humidity is low, perspiration evaporates too quickly and the air is too dry for comfort.

The capacity of air for holding water vapor varies with the temperature, the warmer the air the more moisture it can contain. Therefore if saturated warm air is cooled, part of the moisture is condensed. If warm air of high relative humidity is cooled, the relative humidity increases and at some temperature reaches 100%. This temperature is called the dew point, and further cooling will cause condensation of part of the moisture content. If cool air is warmed the reverse is true; that is, the relative humidity decreases as the temperature rises.

This latter phase is of importance to the heating engineer. On a cold winter day the outside air may have a high relative humidity, but on being brought into the house and warmed, its capacity for holding moisture is increased, so that although no water is removed, its relative humidity is decreased. In other words the air is "thirsty" and it quickly absorbs any moisture with which it comes in contact. Such thirsty air has a bad effect on many things in the house. It draws moisture out of furniture and musical instruments, out of plants and animals. Cut flowers in such an atmosphere wilt very quickly. A person breathing such air subjects his noise, throat and entire breathing apparatus to a drying out process which makes them more susceptible to attack by various disease germs. I firmly believe that great numbers of winter colds are due primarily to insufficient humidity in the heated home.

From a strictly engineering viewpoint the chief disadvantage of dry air in the heated house is that the occupants feel chilly, even at seventy or seventy-two degrees, whereas with properly controlled humidity, sixty-five or sixty-eight degrees is a comfortable temperature. Properly moistened air will therefore result i na noticeable saving of fuel.

Humidification of the air in a heated building can be most easily accomplished with the warm air type of furnace. These furnaces are equipped with

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A Career in Electrical Engineering

By C. C. Knipmeyer, Professor of Electrical Engineering

WHEN a young man chooses engineering as his vocation for life, certain factors have influenced him in his choice. These factors are not identical in all cases, nor do they weigh equally with all individuals. Certain factors, however, are more or less common to all. The young man is likely to look upon engineering as an honorable calling. He knows that an engineer, by constant association with the laws and truths of nature, is naturally an honest man and is respected as such. He knows that civilization will steadily grow more and more dependent upon the engineer for its well-beging and its progress. He feels that ideals of creation, construction, service to mankind and intellectual growth can all be attained in engineering as in few other professions. He thinks, nad certainly hopes, he has the necessary mental qualifications for an engineer. All these things should influence him, but, most important of all, he should have an intense interest in engineering. Without this absorbing interest, happiness and success in engineering are likely to have very definite limitations.

The above considerations hold for engineering generally. Particular interest in a particular branch of engineering is sufficient justification for selecting that branch. Opportunities for success might well be considered equal in all branches. A study of the achievements of Rose graduates with reference to their respective courses would probably show no greater percentage of success for one branch than for another. Nor should such a comparison influence a man away from that branch of engineering which holds his interest and appeals to his tastes. Success and happiness come with enthusiastic effort and enthusiastic effort comes with heart-felt interest.

Is the electrical engineering field becoming overcrowded? Has the average young electrical engineer, graduating from our leading universities a fair chance to keep above in the fight for supremacy in the field, or will one of the many thousands of others keep him down? The electrical field is forever broadening, and with each addition comes the chance for a new man to specialize, and perhaps pave the way for a still greater contribution to the electrical world.

The young man who, through a deep interest in things electrical, chooses to study electrical engineering at Rose Polytechnic Institute may well inquire, however, as to what Rose graduates in electrical engineering have done and are doing and just what the future may have in store for him.

Txamination of the records shows that the electrical manufacturing plants claim more of our electrical graduates than are found in other pursuits. In these plants there are about one hundred eighty. Of these, eight are designing, forty-six are in the engineering departments, seventy-five are in commercial departments and fifty in the salse organizations. Considerably more than half of our electrical graduates go to these manufacturing plants immediately after graduation where for the first year or two they are put through a training course which takes them into every part of the plant and familiarizes them with the work in every department. This period of training is very rich in experience for the young engineer and is particularly valuable also in enabling him to decide what line of work suits him best. He may develop such taste and ability for designing that he finds his life's work there. He may like research and general engineering problems which place him in the research laboratories or in the engineering offices. He may find his greatest happiness in experimental development, in manufacturing proper, in testing, in application or in erection. He may have taste for the commercial work. He may be happiest as a sales engineer.

Industrial engineering has taken some sixty of our electrical graduates. Electrical applications are to be found everywhere in the industries and these electrical engineers take care of and develop such applications. This field is growing in importance and the men in it are generally very enthusiastic over their jobs.

Power engineering claims forty-eight Rose electricals. They are about equally divided between generation of power and the commercial problems of power distribution and sales.

Particularly during recent years the big telegraph and telephone companies have wanted Rose men. They look with favor upon the kind of training given at Rose, where, instead of attempting to give special courses in communication, the time is taken to give a solid foundation training in general engineering principles. This allows more successful specialization after graduation. There are about twenty-eight men in this field and they make optimistic reports of their progress. Each year more are invited.

The field of consulting engineering has taken some twenty of the electrical graduates. Actually many more are engaged in this work, but instead of having independent practice, they are associated with large companies who manufacture or sell equipment as well as make the engineering layouts.

Teaching has attracted full as many of our men as the consulting business. Patent law, accounting and insurance have claimed about an equal number.

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Training the Chemical Engineer at Rose

By Alfred Thurston Child, Associate Professor of Chemical Engineering

THE young man who comes to Rose and wants to learn to become a chemical engineer is concerned with three things. First he very likely would like to know what chemical engineering covers in the industrial field, secondly what the curriculum covers and third what are the outlets after he graduates.

Chemical Engineering

Chemical Engineering began in the field of industrial chemistry about twenty years ago. Men who were chiefly interested in chemical processes which possessed practical dollars and cents value and had that orderly constructive type of mind which any engineer must have became chemical engineers by force of circumstances. They had to train themselves. These engineers won a place for chemical engineering and now chemical engineering is taught in most of the schools where engineering is taught.

Chemical Engineering then is concerned with practical economical application of processes of chemistry. Consider the course of events when a problem of research is submitted to a chemical engineer for solution. The first steps are studied in the regular chemical laboratory on the test tube or beaker scale after a thorough study has been made of all the current literature. If the results of this step in the investigation show promise, a lethe process is given a thorough test on a laboratory scale. We will say the results are still favorable. Then begins the typical chemical engineering study of the problem. A small, semi-commercial plant is designed and erected. In this plant a group of young engineers will give the new process the acid test. If this process stands up, one or more of these young men will very likely be asked to join the force of older men who design and erect the real plant and perhaps operate it after it is built. So he gets his start.

Now, as never before, the chemical engineer is employed in the industry of the nation. Improvement has called for a greater accuracy and knowledge of the materials used in manufacture—this is the job of the chemical engineer. Again it is a matter of training; training of mind, training of eye, and training of hand. That is the job of the school; for having been so trained, in addition to the experience otherwise acquired, the chemical engineer becomes a vivid part to the advancement of our industry.

The Curriculum

The curriculum covers a basic core that is common to all the courses, and, beginning with the junior year, basic engineering courses and specialized engineering courses.

During the first two years the basic or core subjects occupy most of the student's attention. His instructors labor to give him a thorough grasp of subjects that lie at the root of all engineering. He learns that physics and chemistry are closley related, and that mathematics is under both. Later on he will find that physics develops into physical chemistry, one of his most important studies. The engineer of today is expected to hold his own with other professional men and must therefore have some cultural background, use spoken and written English well, and if research appeals to him he must have a command of at least two modern foreign languages. By the end of sophomore year the young man should possess this very necessary basic training and be ready to take the basic engineering subjects and the special subjects that belong especially to chemical engineering.

His first special work is quantitative chemistry. With his fundamental knowledge of general and qualitative chemistry he is ready to learn to find out just how much lead is in an alloy or ore. This is the work of the control chemist. Chemists control the processes of most chemical plants and determine the quality of their products. The chemical engineer has to go a step farther for he will be concerned with the operation and design of plants. A study of "unit processes" is taken up in junior and is the typical basic subject of the course. In this course the student finds that such processes as filtration, mixing and agitation, distillation, evaporation, drying and disintergration, are used in a great many chemical plants. In fact, metallugical plants and other plants not strictly chemical, use some of the unit processes. These so-called unit processes then form the very root and core of chemical engineering as a special field. A series of carefully chosen lectures and conferences introduces these processes and explains their application in various chemical processes and also explains the use and construction of many forms of apparatus like vacuum pans, filter presses, thickeners, etc., machines used mainly in the chemical engineering industry. In junior year the course in organic chemistry, a subject that looms so big in modern chemical work, is completed.

Senior year finds the student ready for a pretty specialized course. One more pure, or theoretical science is introduced, physical chemistry. This subject is becoming increasingly important. Frequently an advertisement will specify that the chemist or chemical engineer must have been thoroughly trained in *physical chemistry*. Physical chemistry deals particularly with solutions, gas pressures,

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Research and Progress

Conducted by Herman A. Moench

THE engineering students as well as the layman is often inclined to consider the application of scientific principles in machines and inventions as, perhaps, the most important kind of scientific endeavor. A little thinking on the matter will soon show that this conclusion is in error. While an application of fundamental principles often shows great genius on the part of the inventor, the work of the scientist who discovers the fundamental principles that make the invention a possibility is far more important than the application. An article appearing in the Monthly Letter No. 106 of The American Exchange-Pacific National Bank, New York City, and reprinted in the General Electric Review, presents this idea more fully and is quoted here since it represents the viewpoint from which material for this department will be chosen during the year.

"Science and Invention"

"The neglect of research in fundamental science in this country—testimony given in the utterances of public men and in the press seem to indicate that it is being neglected—may be attributed to the fact that we are prone to give all the credit for the development of modern wonders to the inventors of such things as the airplane and the telephone, and none whatever to the men who discovered the principles and laws upon which these things are based. In thinking of the airplane, for example, the average man thinks of the Wright brothers and never gives a thought to Langley and the other pioneers in the principles of aerial flight. The same is true of the radio; many inventors have appeared in this field since DeForest introducde his telephone, but all of the fundamental work was done by Clerk Maxwell and other investigators and researchers, who, perhaps, were little concerned with the possibility of talking great distances through the air.

"Inventors, as a rule, are the men who take the principles and laws discovered by scientists and apply them in the production of some new instrument or machine that is useful to man. Their work is important, but it is not fundamental. The problem of applying principles often calls for great genius, but the work of discovering principles is more important, because it is more fundamental, because it makes the work of the inventor possible.

"Man has always been more or less adept at applying his knowledge to useful ends. Progress, in the modern sense of the word, did not begin in the world until man began his search to discover the principles and laws that control the material world. Since he began to uncover these laws and principles, the advance of invention has been carried on at a tremendous rate—one after another, man has developed steam, electricity, the internal combustion engine, and the water turbine. These engines are the fundamentals of power and the source of most of the neergy that we use in the operation of other inventions. The telephone and telegraph, the airplane, the locomotive, and the automobile, all are possible because we have easily controlled sources of power with which to operate them. But even with full control of power, there could have been no progress but for the discoveries of the principles and laws that controlled such apparently diverse things as lubrication and the ductility of metals.

"Nearly every mechanical development that we have devised is based in one way or another upon the laws and principles discovered by Galielo, Newton, and other pioneers in the field of pure science. The discovery of natural laws and principles must precede all invention. As wonderful as the progress based on the early discoveries of science has been, there is reason to believe that our knowledge of fundamental laws and principles is as nothing compared to those that remain to be discovered and that when discovered will be applied in the development of new inventions more remarkable than any we have yet known.

"Unless we search for these undiscovered laws and principles, we risk the danger of moving around a circle, just as the world moved for thousands of years before science showed it the way to break the circle."

Developments in Diesel Aircraft Engines

(Contributed by Volney A. Hutchinson, m' '29)

ACCORDING to an announcement made by the Packard Motor Car Company, initial and successful experiments were conducted recently on a Diesel type radial air cooled aircraft engine. The engine weighs less than three pounds per horse power, eliminates fire hazards completely, and is said to carry a pane 25 per cent. farther per pound of fuel than any of the present types. It develops 200 hp.

Application of the Diesel principle has eliminated gasoline, spark plugs, ignition system and carburetor. This new engine is said to have fewer parts than even the simplest gasoline aircraft engine. Elimination of electrical ignition makes it possible to utilize interplane radio communication without the usual interference from that source.

Although engineers the world over have sought for years to adapt the Diesel principle to aircraft use, the idea has generally been regarded as futile due to the great weight per hp., believed necessary for successful operation. The Packard reduction has been brought down to less than three from approximately 100 lbs. per hp.

Color Motion Picture

A BLACK and white film that produces color movies is one of the latest developments in photography. This is accomplished by using instead of the usual smooth surface film, a film embossed with minute cylindrical lenses which break up the light entering the camera into its various components which are suitably recorded on the light sensitive emulsion according to their intensities in black and white.

Based upon this radically new and simple principle, a film is being offered to the amateur photographer. It has been developed in the Eastman Kodak Research Laboratories and is embossed with 559 cylindrical lenses to the inch running lengthwise of the film. When used in conjunction with a three color light filter—each section of which lets into the camera only light of its own color—the film may be used with any of the usual amateur movie cameras.

When used in the projector, the film acts upon the white light passing through it in such a manner as to separate it into three components of proper intensity and direction which, after passing through the lens and color filter, recombine on the screen to produce a naturally colored picture.

The simplicity of the underlying principle is the most significant fact about this new answer to the problem of color movies.

—*Abstract from The Scientific American.*

Class Games

THE class games were held on Saturday afternoon, Sept. 22, 1928, consisting of the canoe tilts, tug of war, and pipe rush. The canoe tilts and the tug of war took place on the lake and the pipe rush was held on the athletic field.

The sops obtained complete revenge for their previous defeat in the class scrap and took the freshmen into camp in all three events.

The first of the three events was the canoe tilt contest and after three tilts, the classes were tied, so one more tilt was held, with the sophs champions, Schumard and Wade giving the rhinie paddlers another ducking.

The next event was the tug of war, and after much arguing, and breaking the rope once, the battle was on. Although the sophs were outnumbered, they discovered great strength in their numbers and pulled the class of '32 across the lake, giving them a good ducking which they thoroughly deserved.

The main event, the pipe rush, took place on the athletic field. The sophs lined up at the west end of the field and the frosh at the east end. Coach Phil Brown thew the pipe in the middle of the field, and Weddle, soph track star, reached it first and threw it to his mates. After the battle was over, it was found that the sops had two more hands on the pipe and had won 10-8.

Standardizations of Scientific and Engineering Symbols and Abbreviations

A FORWARD step in the unification of scientific and engineering notation has been accomplished in the standardization of engineering symbols by a committee sponsored by such national societies and associations as the A. I. E. E., A. S. M. E., A. S. C. E., S. P. E. E., and the A. A. A. S. The representatives of these organizations have compiled a system of rational symbols for Hydraulics, Aeronautics, and electrical quantities. In addition standards are being prepared for Heat and Thermodynamics, Photography and Illumination, Navigation and Topography, and Abbreviations for Engineering and Scientific Terms.

It is especially fortunate that the aeronautical symbols are being standardized while the industry is still young as this should help to unify the literature on this new and important branch of engineering.

This standardization of engineering symbols is of especial interest to the engineering student since it will tend to eliminate the confusion arising from differences in the systems of notation used in the various engineering texts.

—*Abstracted from Mechanical Engineering.*

Class Scrap

THE class scrap between the rhinies and the sophs took place the night of Sept. 12, 1928. A large crowd assembled around the scrap ring about 8 o'clock in the evening, expecting any moment to see the sophs and the rhinies tangle.

The wary sophs on the other hand were out foraging for freshmen and as usual discovered their meeting place which was Woodrow Wilson school. The freshmen that were not captured fled to the seven winds, and caused the juniors much concern as to whether there would be a fight or not.

After capturing as many as possible the sophs entrained for the place of battle and waited patiently for their foes to arrive. Much to the disgust of many, they did not arrive until about 10:30.

At 10:30 the frosh descended upon the scrap ring, led by their scrap captain, Maxwell. The sophs fought hard but they were outnumbered and in a short time they were securely tied and all set for their second journey to the surrounding territory of Terre Haute.

The fight was a success for the freshmen and for the school as it is one of the biggest advertisements the school has. This scrap shows that the men that Rose turns out are able to care for themselves physically as well as mentally.

Published Monthly by the Students of the Rose Polytechnic Institute

The Rose TECHNIC

A Magazine Pertaining to Engineering and Allied Sciences

Member of Engineering College Magazines Associated

The New Student

AS USUAL Rose Poly is not lacking this year in raw material for the production of first class engineers. The opening of school leads one to believe that the class of '32 will not be one weak in numbers. The customary limit of 100 was more than reached before registration day was at an end. It is of interest also to note the unusual percentage of out-of-town men.

Rose seems to be gaining in popular favor through-out the state as well as in other statse. This year the dormitory is filled to its capacity which means over 50 students. It might be added that this is the first time in the history of the dormitory that it has been filled.

Distance no Barrier to New Students

This year we have as a beginner at our school a Brazilian who was introduced to our school by his well-known brother, Jose de Carvalho. Nelson de Carvalho is finding out about American customs and learning about Rose Poly Engineers from his brother. It is felt that the two students from Rio de Janiero will extend the reputation of our school so that we may have the opportunity of educating even more students from afar.

It must not be overlooked also that we now have a student from Switzerland. Mr. Heller is not one of the Rhinies but has been graduated from a university in his country and is seeking post work at Rose.

When we consider the distances that the new students have come, we know that our school is not lacking for want of fame.

New Faculty Members

NO doubt the average student has sensed a new atmosphere at school this fall. There have been several changes made not only in the appearance of the interior of the building, but also in the appearance of several new faculty members. It is always interesting to have a new faculty member and to note the impression he makes on the student body. Of those added to our faculty list this year I have heard of none but favorable comments.

These are represented in several different departments this year. It might be well to single out each with his respective department.

Everyone knows our new coach, "Phil" Brown. He is really a coach and has succeeded in convincing the student body by his earnest efforts that we are going to have bigger and better chances for a football team this year. Unfortunately he is limited by several disadvantages. The most important and most usual of course is the lack of material. One noticing his efforts would be short-sighted indeed if he did not gather that he will fashion a team this year that will start the "Fighting Engineers" on the up-grade to the fame that was once theirs. "Phil", we are all for you!

Undoubtedly no one has overlooked the fact that Professor Settles is no longer among the faculty members. There is something about Professor Halstead that tells us that he is not uncapable of taking charge of the vacancy which the former Professor has left. All his students seem to be enthusiastic to accept him and will no doubt get something worthwhile from his courses.

Lieut. Bessell, now at West Point, is being sorely missed by the student body. To take his place comes Lieut. Hoaas from Washington State. We are pleased to accept him as one of our faculty. It is apparent that he does not intend to let things drag but will keep the ball rolling in order that the Rose Military unit will hold its good standard. No doubt we will catch his influence on the drill field this spring.

We have a new instructor in the shops. Students in the blacksmith shop will learn about it from Mr. Marvin Hasell.

If you should have trouble in finding your book or magazine in the library, ask Miss Neukom. She is our new librarian who is successfully taking the place of Mrs. Selee.

To this article might be added the installment of new management in the dormitory. Mr. and Mrs. Hopkins are now in charge of it and the favorable comments on the noon meals indicate that they are capable managers.

Herbert Hoover--- Engineer and Business Man

(Editorial in "The Colorado Engineer")

HERBERT HOOVER will always be an outstanding example of one of those men so much in demand and so rare, an egineer of unusual attainment whose engineering ability is surpassed by his capacity to solve administration and business problems.

He was a member of the first class to be graduated from Leland Stanford, where he majored in geology. After being graduated, he went to work for a consulting engineer named Janin, upon whom he made such an impression that when an English engineering firm sent out a call for engineers to develop gold mines in West Australia, Hoover was unhesitatingly recommended for an important position by his employer, although at that time he was only twenty-three years old.

In Australia his record in the development and administration of mining properties was so good that in 1899 he was made Director General of Mines in China. In China his work was interrupted by the Boxer uprising; however, he did not leave until he had made definite progress in the development of China's natural resources.

In 1908 he severed his connection with the English firm in which he had become a junior partner and launched himself into an independent career. From there on the scene of his activities shifts rapidly: Borneo, Burma, Malay, Mexico, Nicaragua, Peru, Russia and South Africa all bear evidence to his ability as an engineer and administrator in the shape of efficiently developed mineral resources. The enormous labors carried out in these countries he accomplished between 1902 and 1914.

In 1924 the war started and Hoover became an international figure. His activities during the war, first as Administrator of the Belgium Relief Fund and later as director of food supplies for the Allied Powers, need no elaboration here.

In 1921 he was appointed Secretary of Commerce, a post which he has elevated from relative insignificance to one of the most important in the government. Some of his activities as Secretary include work on the Mississippi floor problem, reorganization of the Department of Commerce, work on a system of control of radio broadcasting and standardization of manufactured products.

There, in short, we have a portrait of Hoover, engineer and business man, whom Franklin K. Lane has characterized as "a Harriman, a Morgan, a Huntington, a Hill, a Bismarck, and a damned Yankee all rolled into one!"

Goodale-Wagner

MISS BARBARA WAGNER, daughter of Dr. and Mrs. Frank Caspar Wagner, became the bride of Charles DeLoss Goodale, Monday, Aug. 6, at the summer home of the Wagners on Crystal Lake in Michigan. The bride was attended by Miss Cyrena Stirwalt of Terre Haute and had for her flower girl her charming young niece, Priscilla Johnson, while her six young nephews served as pages. The groomsman was Mr. Herbert Garrard of Mansfield, Ohio.

Mr. and Mrs. Goodale are at home at the Jefferson apartments, Eighth street and Washington avenue.

The bride has been very prominent in social circles of this city. She is a graduate of the University of Michigan, where she was a member of the Alpha Phi sorority, and attended Mme. Reiffel's Ecole Francaise in New York City. Mr. Goodale is a graduate of Purdue university and is connected with the Commercial Solvents Corporation.

Faurot-Sankey

A WEDDING of unusual interest took place Tuesday, Aug. 7, when Miss Anna B. Sankey became the bride of Prof. Albert A. Faurot. After a wedding breakfast at the Terre Haute House, Prof. and Mrs. Faurot left on a month's motor tour of the east.

The bride is a graduate of DePauw university and is a member of the Alpha Phi sorority. Professor Faurot received his master's degree from the University of Nebraska and has done extensive graduate work in France and Germany. He is a member of Phi Beta Kappa. At present he is head of the foreign language department of Rose Polytechnic Institute.

Prof. and Mrs. Faurot are at home to their friends at 649 Poplar St.

Training the Chemical Engineer at Rose

(Continued from page 6)

partial pressures, in other words the physics of chemistry. Many chemical processes can be made to proceed to a successful issue only when these laws of physical chemistry are obeyed. In senior year, too, comes laboratory practice in unit processes and chemical engineering problems. The young man has a chance to work some of these processes on a semi-plant scale. After he has a chance to help construct some simple chemical engineering apparatus to add to the present equipment of the laboratory.

He is introduced to industrial chemistry the fascinating study that deals with the romance of chemistry, how sugar, dyes, paper, fertilizer, etc., are made. As a climax to these studies, he is given a course in chemical engineering problems that fur-

(Continued on page 12)

Charles E. Scott, '86, died in Terre Haute, Aug. 24, after a prolonged illness.

John G. Barnes, ex-'22, died in Albuquerque, N. M., August, 1928.

Thomas O. Henry, for many years instructor in foundry in the Rose Polytechnic Shops, died Aug. 26.

There is no doubt that the alumni section of the "Rose Technic" is turned to most frequently by the alumni. The alumni editor, because of this fact, attempts to secure all information possible about the activities of the alumni, but he is handicapped in many ways. Now, if each alumus would drop in a line when a change is made, we could add materially to the interest of this section. Can not the staff of the "Rose Technic" look forward to many interesting letters from the alumni in the near future? Address your letters to the Alumni Editor, care the "Rose Technic."

Rose Tech Clubs

At a meeting of the St. Louis Rose Tech Club on May 31, 1928, A. A. Bareuther, '10 ,and R. F. Leinberger, '16, were elected president and secretary respectively. Edmund H. Wiedeman, '03, and George W. Holding, '17, were the retiring officers.

There was a meeting of the Indianapolis Rose Tech Club, Wednesday, Sept. 12, 1928. Dr. Wagner was one of the speakers on the program.

'93

Robert H. Moth is now with the Chicago Sanitation District.

'01

Robert K. Rochester is general manager of the Pennsylvania Lines East with headquarters in New York. He was formerly general manager of the Long Island R. R. Co.

'04

At a meeting of the stockholders of the Bradley Washfountain Co., Milwaukee, Wis., Howard A. Mullett was elected president of the company.

'06

Ambrosio d'Amorim is construction engineer for the Companliia Central Brazileria de Forca Electrica, Victoria, E. Santo, Brazil.

Roy Thurman is associated with the Indianapolis Light and Power Co.

'07

Among recent visitors at the Institute was Schuler P. Hall. Mr. Hall is an instructor in Physics at Cornell University.

'14

Claude A. Lyon with the Standard Automatic Signal Corp'n. in Chicago is taking a course in law at the John Marshall Law School.

'17

Henry C. Gray has taken a position with the Winslow Scale Works of this city.

Richard Aitken visited the school Sept. 25. Mr. Aitken has just recovered from an eight months' siege of typhoid fever.

'18

Chester W. Falls, a very active member of the A. I. E. E. and an outstanding figure in the electrical industry, has contributed several articles for publication in recent issues of the General Electric Review.

'19

Herschell A. Hearn is now connected with the East Pennsylvania Electric Co., Pottsville, Pa.

'22

Hal H. Dronberger has taken a position with the Puroil Company at Mobile, Ala.

'23

Oliver W. Neukom is associated with the Union Oil Co., Oleum, Calif.

'24

Edward J. Hauer is an engineer with the Sanitary District of Chicago. Previous to this he had been working on the terminal improvement project of the Illinois Central railroad at Chicago.

On June 27 Henry Scharpenberg paid his first visit to the school since graduation. He is located at Bakersfield, Calif., with the General Petroleum Co.

Leo F. Flaherty has completed his law course and made application to practice before the United States Patent Office. He is with the firm of Marks and Clerk, Washington, D. C.

Samuel S. Forsythe is now branch manager for the Truscon Steel Co., at Little Rock, Ark.

Gustav Pfeiffer and Mrs. Pfeiffer visited Rose June 26.

Edward C. Gray with the General Electric Co.,

has been transferred from Lynn, Mass., to Cleveland, Ohio.

W. Roscoe McIntosh was another recent visitor. Mr. McIntosh is assistant professor of civil engineering at the Speed Scientific School, University of Louisville.

Announcement of the marriage of Miss Evelyn Jennie Shove and Howard L. Newton on Aug. 21 has been received. Newton is power sales engineer with the Milwaukee Electric Railway and Light Co.

John T. Stone has moved to a suburb of Cleveland, O. He is with the General Electric Co., and has been located at Schenectady, N. Y. His removal to Cleveland carries with it a fine promotion.

Rolin M. Schahfer is connected with the Northern Indiana Service Corp'n. He has recently been promoted to superintendent of transmission.

'26

Clarence L. Corban is benzol foreman in the by-product coke plant of the Inland Steel Co., at Indiana Harbor, Ind. Corban received his master's degree from Carnegie Tech last year.

E. Wayne Watkins and C. Max Sherwood have gone back to the Big Four at Cincinnati, O.

'27

Raymond R. Davis has been transferred from Erie, Pa., to Ft. Wayne. He is with the General Electric Co.

Ernest O. Johnson is technical field representative for the Radio Corporation of America with headquarters at Chicago.

Ralph T. Davy and Miss Elizabeth Booher were married July 7, at Philadelphia.

'28

William P. Leake is in the Maintenance of Way Dept., Toledo Terminal R. R. Co., Toledo, Ohio.

James E. Goddard is with the Morgan Engineering Co. at Dallas, Texas.

ex-'30

Roger Mace is with the Electric Research Products Corp'n. of Los Angeles in the business of installing the Vitaphone and Movietone in theatres.

Training the Chemical Engineer at Rose

(Continued from page 10)

nish tangible, practical applications of unit processes treated in a mathematical way. Metallurgical engineering is really a great branch of chemical engineering because so many of its processes are founded on chemical processes. In fact the metallurgist uses a great many of the unit processes which characterize strictly chemical engineering operations. The blast furnace depends upon chemical reactions at high temperatures. Leaching a low grade copper ore with dilute acid and precipitating the copper from solution by the electric current are chemical operations. Hence the chemical engineer is given a thorough course in metallurgy so that he can readily enter the field of metallurgy if he desires. He may elect a course in metallography which shows how defects in steel and alloys of all sorts may be detected by the microscope. This, however, is only one phase of the subject. At the very end of the course he has a chance in his thesis to apply his practical or research inclinations. This piece of work forms a fitting finale to all engineering courses.

Outlets for the Young Chemical Engineer

At the present time the field of chemical engineering is very active. No difficulty has been encountered in finding excellent openings for our graduates for the last two years. This condition of activity is founded on a steady growth and recognition of the profession which promises a steady demand on the schools for graduates.

The writer suggests a careful study of the January number of Chemical and Metallurgical Engineering available in our library. This number contains a great number of brief general articles dealing with progress in chemical engineering lines. Near the front of the number are found very important and interesting diagrams which show in a very graphic way the interrelation of chemical industries through the unit process idea. Another chart shows the chemical industries into which the young engineer goes, after he graduates.

The writer also wants to stress right here the great value of a fifth year spent in research or further study. This department has been fortunate in the last few years in securing opportunities for its graduates to obtain fellowships by means of which the student can take up graduate study with little or no cost to himself. The Bureau of Mines and a number of Universities maintain such a system of splendidly supervised fellowships. The Bureau of Mines co-operates with Carnegie Institute and some other state universities, while other universities have fellowships conducted by the university alone.

At the outset the manner in which a research problem is attacked was described. The research department is one splendid field of work carried on by many of the large corporations and available for the young chemical engineer if his bent is that way. Again he may enter the training course of the corporation which very likely begins with some control laboratory experience and leads ultimately in operation of plant or construction work. He may, however, have a gift for sales engineering—that is the selling of chemical products or equipment. If he possesses the rare qualification for this work he always has an opening waiting for him—*provided* he can demonstrate he has the right stuff in him. Economic conditions today are in a state of flux. Projects which *Chemical Engineers* supervise frequently exercise a controlling influence on economic conditions. One writer has said that today is the day of the chemical engineer. At any rate there is a tremendous field available for him and plenty of opportunity to secure a satisfactory start. The department is always glad to discuss the course or the opportunities in this field with students who may wish to do so.

ATHLETICS

Football Possibilities at Rose

Coach "Phil" Brown

USING the turnout for football as a basis of judgment, I decide that there is a decided lack of interest at Rose in the game. After hearing a few upper-classmen in conversation a few days ago, I was confirmed in my opinion. I gather that not more than a third of the student body turns out for the games, that no man is willing to act as cheer leader because the few men at the games feel it beneath them to cheer. Here lies the real reason Rose has slumped in athletics. Why should any team play grade A ball when it has no inspiration? When its fellow students fail to appreciate its efforts? When it has no backing? A winning club is developed not by the coach nor the personnel, but by the entire student body.

What the season will bring is unknown. A small squad, without much experience, and a lack of college spirit do not make the future overly bright. However, the squad members have spirit, and a will-to-win, so we may be able to place a game or two on the right side of the column.

As for the material itself much can be said. Captain Derry will work his last year at end. He has spirit, is a fine tackler, and an able leader. Although he has never worked at end he should develop by the end of the season. Mike Ellis at a tackle position should become one of the state's greatest linemen. He has size and power. There are several other prospects for the tackle positions; among them the following men show promise: Bruce, Gibbens, Nicholson. As aspirants for the guard positions O'Mara, Dillingham, Pratt all have possibilities. Bruce, with some experience behind him, may work well at guard. For centers, two men are about equal, Ogan, of the 1927 squad, and Kemp, a freshman from Chicago. The other end is a problem. Leonard, W. and H. Dicks, Ury, Hughes, and Tonetti, all have a chance. Page might develop into an end, as might either of the Dicks brothers, if they would try coming to practice at least occasionally.

In the backfield, the candidates are plentiful. All of them are light but drive can help them offset that deficit. Eldred has fine qualifications for the quarterback position, but is ahead of several freshman aspirants only by reason of a year's experience. The others include DeWitt, the Louisville flash, and Dress, the pride of Wilkes-Barre. Smith handles punts well but is weak as far as voice is concerned for the signal calling. Dress should make a valuable ball carrier as he has the best straight-arm on the squad. Adams, Richeson, Cooley, Marsh, Becker, Howson, Maxwell, Silverstein, are all about on a par as ball-toters, and the ones who turn out to be the blockers and tacklers are the ones who will get the call.

Our home games are:

Oct. 6, Indiana Central.
Oct. 27, Eastern Illinois.
Nov. 5, Oakland City.
Nov. 28, Indiana State Normal.

If the entire student body will turn out for these games and show the team that Rose backs their every effort, the biggest obstacle will have been overcome. The team is sacrificing a good deal for victories, will you sacrifice a little time and a little voice?

Indiana Central vs. Rose Poly

ROSE POLY was defeated by Indiana Central Saturday, Oct. 6, at Rose field by the score 31-6. The visitors had the advantages of weight and experience, having played one game before the one Saturday. Allen looked best for Indiana Central, while Derry and Tonetti played very well for Rose.

Indiana Central (31)	Position	**Rose (6)**
Deinmary (c)	L. E.	Derry (c)
Reese	L. T.	Nicholson
Sackmire	L. G.	Dillingham
Turner	C.	Ogan
E. Smith	R. G.	O'Mara
Vance	R. T.	Ellis
Eastridge	R. E.	Tonetti
Brenneman	Q.	Eldred
O. Smith	L. H.	Cooley
Allen	R. H.	Richeson
Daugherty	F.	Marsh

Scoring touchdowns: Derry, Indiana Central: Daugherty (2), Allen (2), Bright. Points after touchdown: Deinmary.

Substitutions: Indiana Central—Allen for Bright, Bright for O. Smith, H. Smith for Eastridge, Fields for Sackmire, Leiber for Turner, Inman for Vance, Babbit for Reese. Rose Poly: Maxwell for Tonetti, Gibbens for Ellis, Dicks for Maxwell, Bruce for O'Mara, O'Mara for Bruce, Becker for Richeson, Adams for Marsh, Nicholson for Ellis, Kemp for Ogan, Tonetti for Derry, Derry for Dicks, Ogan for Kemp.

Officials—Referee, Lon Goldsberry, Wabash; Umpire, Dick Miller, Carnegie Tech; Head Linesman, George Seidensticker, Wabash.

	1	2	3	4	
Rose Poly	0	0	0	6	— 6
Indiana Central	6	12	13	0	—31

FRATERNITIES

Alpha Chi Sigma

THE closing social event of the past season for Iota of Alpha Chi Sigma was the annual senior farewell at Turkey Run state park, June 1. There the four graduating brothers with certain chosen members of the fair sex were entertained by the undergraduates. After the customary hikes over the trails known only to the state park a sumptuous picnic dinner was spread and the appetites sharpened by the afternoon exercise were appeased. As guests and chaperones there were Dr. and Mrs. John White, Lieut. and Mrs. W. W. Bessell, and Professor A. T. Child.

The farewell was one not to be forgotten for the four who were leaving us were responsible for the many accomplishments of Alpha Chi Sigma during the past four years. We miss them very much.

Brother Melbourn Heinig, winner of the Heminway Medal, was granted a fellowship at the University of Cincinnati. He will receive his M. S. degree next spring.

Brothers Rex Adams and Kenneth Metcalfe also received fellowships. They are taking their work at the Carnegie Institute of Techonology and will get their M. S.'s next year. Brother Harold Hayworth accepted a position in the research laboratories of the Hercules Powder Co., and is now located at Joplin, Mo.

The undergraduates came in for their share of the summer activities. Brother Shewmaker was in Indianapolis with the Republic Creosoting Co., in their research laboratories; Brother Shattuck was with the National Tube Co. at their Chemical and Metallurgical laboratories at Gary, Ind.; Brother Krockenberger enjoyed the six-week stay at the R. O. T. C. camp at Camp Custer, Mich.; Pledge Brother Stewart Hunt went with the Carbon and Carbide Co. at Charleston, W. Va. "Stew" evidently was well impressed with the hills of West Virginia for he has planned to stay through this year and return to the institute new fall.

Much concern has been felt in the past few days for the recovery of Pledge Brother Morris Tweedy, who figured in an automobile accident Sept. 29. It is hoped that he will be among us again within the next week or ten days.

With Brother Paul Shewmaker's return from the Tenth Biennial Conclave of Alpha Chi Sigma held at the University of North Carolina, this coming season bids fair to be a red-letter year for Iota.

Plans have been made for the continuance of a series of meetings on the History of Chemistry. These meetings are to be held at regular intervals throughout the year and will contribute their part to the regular monthly professional meetings.

This year, as in the past, a very definite aim has been set for Iota of Alpha Chi Sigma to maintain its position at the top of the scholastic averages.

Alpha Tau Omega

THE opening of the new school year found all of the brothers back again ready to tackle anything. Eight seniors were lost last June through graduation. These men are now scattered over the country from Denver to Schenectady. Although these brothers are greatly missed, enthusiasm is running high in the remaining brothers and that alone is sufficient to insure a successful year.

Indiana Gamma Gamma is pleased to announce the pledging of G. Ewing Farrington of Steubenville, Ohio, into the ranks of Alpha Tau Omega.

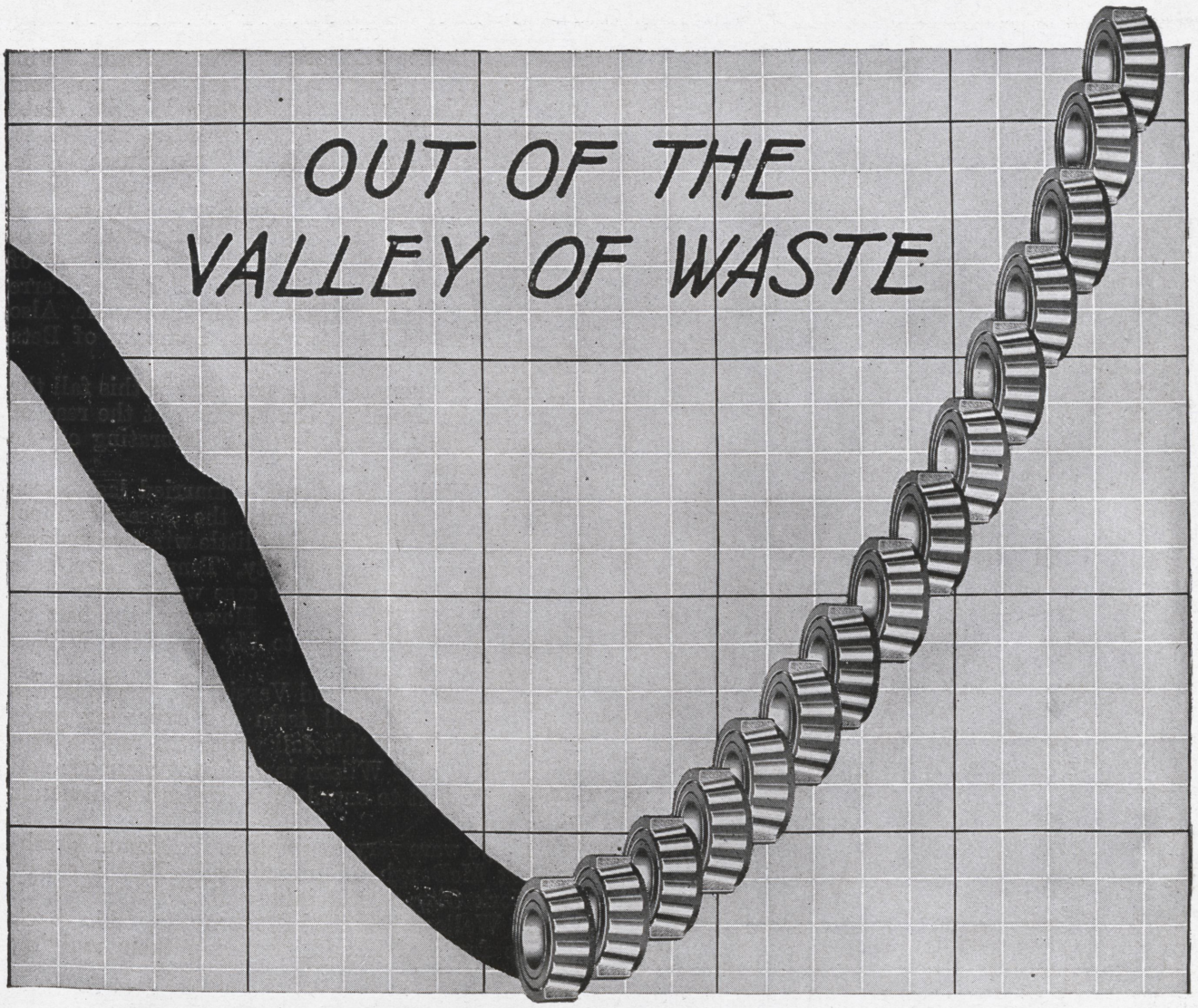
Three of the brothers have joined the ranks of the benedicts during the past summer. Harry L. Willson and Miss Helen Kerr of this city were married on June 5. They are now living in Schenectady, N. Y., where Harry is connected with the General Electric Co. Another marriage was that of Henry Pflaging to Miss Mary Alice Dowden on July 6. Brother and Mrs. Pflaging are at home at Patchogue, L. I., N. Y. Charles Garret Haupt and Miss Marjorie Spinney Burgess of Montclair, N. J., were married on Sept. 7. They are at home in Montclair, N. J. The chapter extends its best wishes to these couples on their great adventure.

Brother W. R. MacIntosh was a recent visitor at the house. Mac is on the faculty of the University of Louisville. Jimmy King also came back to see the boys and became reminiscent of the good old days when he was in school. Eddie Booth is connected with the Pennyslvania railroad in this city and is frequently seen about the house. Brother Bill King is stationed at Rensselear, Ind., with the State Highway Commission. Bill gets back to the house about every two weeks. Two other visitors were Bros. Franzwa and Kasameyer, who are connected with the Day Electric Fan Co., DayFan Electric Co., Dayton, Ohio.

According to the usual policy of the chapter, an outline of the social activities for the coming year has already been made out. Open house, always so popular in the past, will again find favor with the brothers. A smoker and big get-together has been planned for the near future. Tentative plans have been discussed for the annual Christmas formal dance and from all indications it bids fair to be somewhat different and better, if that were possible, than the formals in the past.

Sigma Nu

IT was a great pleasure for the brothers to return to school after spending the summer months working in their various vocations that ranged from highway work to camp life as reserve officers. When we were all assembled at the house we found that Ray Harris, Jack Derry, Duke Holmes, Bob Vendel, Chet Bailey, Bob Dowen, Goofer Clark and



THE moment you put theoretical knowledge into practice you will find that the factor of friction is something all Industry has to fight.

You will also find the foremost factor in fighting friction to be Timken Bearings with their full thrust-radial capacity and anti-friction properties, their Timken-made electric steel, Timken tapered construction and Timken *POSITIVELY ALIGNED ROLLS.*

Installed at the hard service points in motor vehicles and any type of industrial machinery, it becomes graphically apparent that Timken Bearings are bringing Industry out of the valley of waste and up into the higher plane of profit.

THE TIMKEN ROLLER BEARING CO., CANTON, OHIO

TIMKEN *Tapered Roller* **BEARINGS**

Johnnie Cooley were back for their final drive as seniors. Charlie Barbre, Dick Wilson, Jim Brevoort, and Milo Dean were there to hold up the juniors' end, and Jimmy Weddle, Gabe Cripe, Jawn Richardson, Joe Hunter, Ed White, Jim White, Marv Wilson, Al Ogan, Skeet Wade, Bob Mathews, Bob Grosjean, Bob Roach, Norm Traub, Gordy Carmicheal, and Frankie Byrne were there to maintain the dignity of the sophomores.

Beta Upsilon announces with the greatest of pleasure the pledging of Marlen Eldred of Terre Haute and Charles T. Howard of Greencastle. Also the affiliation of Brother Glenn Sampson of Beta Zeta of Sigma Nu (Purdue).

During the summer and early part of this fall the house was improved by the addition at the rear of the house and the painting and decorating of the various rooms.

Leon J. Willien was secretly married last Xmas but it wasn't announced until the close of school this June. He and his pretty little wife are making their home in Johnston City, Tenn. Love is a great institution and in this case was greater than the desire to finish school. However, the best of luck and good wishes go to Mr. and Mrs. Willien in their new venture.

Captain Jack Derry and Varsity Manager Charles Barbre of the football team are expecting great things of the team this fall under the regime of a new coach. Dick Wilson is assistant manager and is doing his best to supply the everlasting demands of the boys.

The boys were very happy to have Alumni Brothers Jack McDargh of Indianapolis, Bud West of New York City, Art Reinking of East Orange, N. J., and Wallace Todd of Steubenville, Ohio, back with us for a visit and spreading their undying cheer.

Howdy White, one of our active and studious brothers, is not returning this fall. The great lure of the hard-earned dollar has him in his grasp and Howard will not return until next fall.

We want all alumni to arrange dates for our biggest and best HOMECOMING ever which will be on Nov. 28. We again renew our traditional struggles with State Normal and you can't afford to miss this game. Brother Wally Marks is coach for Normal and assures us a tough game. This game will sing the swan song of Captain Derry and Johnnie Cooley, two mainstays of the Fighting Engineers.

Theta Kappa Nu

THE members of Indiana Gamma returned to school this fall full of pep and vigor. The main reason is that they are the proud owner of a new Chapter House. It was purchased during the summer vacation and only after a very diligent search had been made that a house was found that was both conveniently located and suitably arranged for a Rose Fraternity. The new house fulfils both of these qualifications, and it is planned to be formally dedicated in the near future by a banquet and dance.

The social year started off with a bang on Friday

evening, Sept. 28, when the brothers and their friends met at the house for an evening of entertainment. Dancing and card playing were enjoyed until a late hour when refreshments were served with everyone present asserting they had had a good time, and hoping that many more such parties will be given.

Among the members who returned this year are Brothers Houston and Davis.

The National Convention of Theta Kappa Nu was held at Cleveland, Ohio, on Aug. 28, 29 and 30, with Brother Andrews attending as the official delegate. He returned full of enthusiasm and new ideas and stated that he had had a very enjoyable time. The big event in the history of our chapter was the election of Brother Leroy Wilson as president of our National organization. Indiana Gamma feels that it is a great honor to have Brother Wilson as an Alumnus.

We were pleased to have as recent visitors at the house Brothers Maehling, class of '24, York, Berry and Schauwecker, class of '28. We are always glad to welcome back our old grads.

THETA XI FRATERNITY

THE active members of the Kappa chapter of the Theta Xi fraternity entertained their Mothers' club with a theatre party and buffet luncheon on Friday veening, Sept. 28. The members and mothers gathered at the fratrenity house and after a short time spent in visiting, everybody left for the Hippodrome theatre, where they were entertained by the Roberson-Smith Stock company in the play, "Laff That Off."

Following the show, the party gathered at the Chapter house for refreshments and a social get-together, where they proceeded to "laff it off" before the cheerful fire in the grate and under the flaming badge of Theta Xi.

We were very glad to welcome Brothers Corp and Collins who have returned to school after a year's absence.

Some of the alumni brothers have been back to visit us, among whom were Brothers Swartz, Hauer, Nehf, Taggart, Carlisle, Lewis, Scharpenburg, Moore, and Kadel.

The Broadening Field of Engineering

(Continued from page 3)

business methods. The interesting result has been that students so trained have been in demand for businesses which have no direct connection with engineering as formerly understood.

Then again banking houses have occasion to use men of engineering training to report upon projects for which loans are asked or bond issues floated. In fact, so closely are engineering and financing linked up that in several instances companies which started out purely as engineering organizations have evolved into financing corporations.

In municipal government there has been a strong movement toward the City Manager form of organization. It is generally recognized that the City Manager should be preferably a trained engineer. So much of the work carried on under a municipality has to do with engineering that if the city executive is to know his business as the executives of other businesses know theirs he should have engineering training. Besides if an engineering training is a good foundation for the management of other businesses not directly concerned with engineering, it ought to be even more desirable for a City Manager.

Can these same principles and methods be applied to affairs of National Government? Can questions affecting business be decided by taking account of the effect upon different businesses and then acting in accordance with the greatest good to the greatest number?

Is it possible then to integrate, as it were, all the various factors in the business life of the nation and organize them as the parts of a factory are organized? The problem is such a stupendous one that we may well question if a solution is possible.

If there be a solution it must surely be brought by the scientific method of induction. No "cure all" theory put over by the eloquence of political orators will do it. How have the triumphs of engineering been secured? The farmer or the mechanic knows from his experience that timbers of a certain size will carry safely his load of hay or of lumber. But he cannot reason from this to a bridge that will carry a locomotive. It is the engineer who calculates the size of the parts of a railroad bridge larger than any which has before been built.

He does it by taking account of all the factors involved. He must know the weights of the locomotive and cars. He must allow for the weight of the bridge itself. He must determine the effect of a train in motion. He must allow for wind pressure. Then he must know the strength of the steel h eis to use. He must investigate the earth or rock upon which the foundations are to rest. All these and other similar conditions must he ascertain before he can design a safe bridge. Then he puts together according to a well established method of cal-

culation all these various factors and design the bridge.

How are the advances in engineering made? Usually by gathering together all known information about the matter being studied and then trying to reach out a step further. Each step is checked up by experiment. It is remarkable how many discoveries have been made quite independently by different men—often by men of different nations. Anyone applying for his first patent will be astonished to find that other men have thought of the same thing or something very close to it before he did.

Fundamentally, the engineer works by ascertaining facts, by experiment and by calculation. He passes from the small to the great by calculation always checked by tests. He becomes accustomed to dealing with large quantities. He becomes accustomed to taking into account many factors and using them all in his calculations. He works without pedsonal bias, knowing that the laws of mechanics and mathematics are not matters of personal feeling.

If the habit of mind of the engineer can be applied in the solution of economic and political problems, is there not a chance for greater progress than under present conditions?

First Student: "Where do you get this stuff of being a war veteran?"

Second Student: "Well, you see, I've been in the Battle of Sedan."—Pup.

Voice from the 11th floor: "'Smatter down there. Have you no key?"

Noisy One on the Pavement: "Gotta key all right, but wouldja jussasoon throw down a few key holes?"—College Humor.

"Is your friend Scotch?"

"Yes; how did you know?"

"He fell into the Black Sea and before I could rescue him he had filled his fountain pen."

"The general was taken rather sick at the banquet last night."

"What from?"

"Oh, things in general, I suppose."—College Humor.

Joe: "Have you heard the Gorilla song."

Nick: "No, how does it go?"

Joe: "Gorilla of my dreams I love you—".

Doctor (examining unconscious engineer): "Did that automobile hit his engine?"

Fireman: "No, the driver slowed up to let the train go by and the engineer fainted."—Bison.

Housewife (to garbage man): "Am I too late for the garbage?"

G. M.: "No, ma'am; jump right in."—Pup.

"Stop, John. Don't do that. Act like a gentleman!"

"Im awfully sorry, but I don't do imitations."—College Humor.

Derry: "May I hold your hand?"

Girl Friend: "It isn't heavy; I can manage, thank you."

Bootblack (looking at tan shoes): "Light or dark, sir?"

Absent-minded Prof.: "A nice piece of the breast would do fine."—Carnegie Puppet.

Simp: "You out of school again, fellow?"

Pathetic: "Yeah!"

Simp: "What did you do this time?"

Pathetic: "Graduated."—Illinois Siven.

He: "I've had this car for years and never had a wreck."

She: "You mean you've had this wreck for years and never had a car."—Douxend.

The absent-minded professor has nothing on the absent-minded business man who kissed his wife and then started to dictate a letter.—Boston Beanpot.

He was an engineering student, and left blue prints on her neck.—Detroit Jabberwock.

Prof. McCormick: "Mr. Harris, what keeps the moon from falling?"

Ray: "I guess it must be the beams."

She: "And what's more, my ancestors came over on the Mayflower."

He: "Oh! Did they allow bootleggers on that boat?"—Pup.

He Studied Engineering

"What are you going to do with your degree now that you have it?"

"Join the Masons." —Cornell Widow.

No one has ever complained of a parachute not opening.—Rutgers Chanticleer.

"And do you mean to tell me you laughed in the face of death?"

"Laugh? I thought I'd die."—Annapolis Log.

Humidity

(Continued from page 4)

water pans, which should be filled regularly, at least once a day. In most furnaces, however, this pan is improperly located and is much too small. For proper results, in an average home, water should be evaporated at a rate of about one gallon per hour, while the ordinary furnace will scarcely evaporate that much in a day. In order to evaporate a sufficient quantity of water, the water pan should be quite large and should be set high, nearly at the top of the furnace casing. In the case of hot water, steam or vapor heating systems, humidification is not so easily accomplished. The only way of putting enough water vapor into the air in the radiator type of heating plant is to have a pan of water over each radiator.

For proper conditions of comfort and health, as well as for the protection of furniture and piano, the relative humidity in the home should be between forty and sixty per cent. during the heating season. To determine the degree of humidity requires the use of two thermometers, one having a "wet bulb," that is a wet wick surrounding the bulb. Charts and tables are furnished by the manufacturers of these "wet and dry bulb" thermometers by means of which the two thermometer readings can be quickly converted into per cent. relative humidity. As a rough guide to tell whether there is enough humidity in the air, we can judge by the appearance of the windows. In moderately cold weather the windows should be covered with a film of moisture, and in extremely cold weather with ice. If this is not true, it is safe to say that the air is too dry. This, of course, is somewhat of a nuisance, as the condensed water vapor runs down the window panes and is unsightly. But we should keep in mind the consoling facts that we will probably be freer of colds and that we are saving coal.

A Career in Electrical Engineering

(Continued from page 5)

About twenty-five are engaged in the mercantile business. For the most part they are dealing in electrical appliances and equipment. More than a score are in radio research or manufacture. A number are bankers. About ten are farmers. Several are army engineers.

It is sledom indeed that toward the end of the senior year any man fails to have several positions offered him from which to make selection. Occasionally it happens that a man's scholastic record or his school attitude or his personality is not such as to bring him an offer. He must then seek for himself and we can only hope that the struggle he

has will bring out the best there is in him and spur him on to success.

Developments in electrical science and applications are coming with such force and speed that it is impossible to foretell even a half dozen years ahead what they will be. Yet we can be assured that the basic training in fundamental laws of science, so much emphasized at Rose, will prepare her men for the future, whatever tha tfuture may be.

When our graduates come back for a visit, one thing in particular can usually be noted. It is their expressed wish that they might have an opportunity to again be students at Rose and take advantage of all that is offered here. The best and the worst of our alumnae all wish they had worked harder, learned more and made better records in every way at Rose. If the vision and ambition of later years could control our students while they are here, the finest ideals of engineering education could be attained and the success of the men of Rose would reach our higset expectations.

Books Received for Deming Hall Library

H. Wayne Curry, '09

Library of Valuable Information
Charles Dickens' Works
Washington Irving's Works
The Nations of the World: Wilburforce—Spain
Scott—Scotland
White—Businses Lass

Claude N. Settles, Ex-Professor of English and Economics

Meeker—The Work of the Stock Exchange
Rosenfeldt—This Thing of Giving
Pickett—Alcohol and The New Age
The Editor Co.—1001 Places to Sell Manuscripts
Cunningham—Chess for Beginners

Edgar B. Powell. $5.00 with which to buy some books. The following books were purchased:

Life of Michael Pupin (Suggested by donor)
Benjamin Franklin (Autobiography)
Thomas Jefferson (Autobiography)

August H. Klotz, '93

O. B. Hayvre—Foolish Etiquette
B. L. Taylor—The Log of the Water Wagon

Ernest E. Hess, '15

Galsworthy—Silver Spoon
Dorothy Canfield Fisher—Why Stop Learning?

Cooley: "Everything I do, I do fast."

Judge: "Better do sixty days; see how fast you can do that."

She: "Don't you just adore lowering clouds?"

Mike: "How should I know? I never lowered no clouds."

As the screen lover wrote: Luckies never affect my deep breathing.

Papa: "Now that you're through college you should marry some nice girl."

Son: "And never use all my college experience? Why, father!"—Carnegie Puppet.

Engineer: "What engines shall we use?"

Skipper: "Oh, Diesel do."—Annapolis Log.

Inquisitive Old Lady: "Where did those large rocks come from?"

Tired Guide: "The glaciers brought them down."
"But where are the glaciers?"
"They have gone back after more rocks."

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