

Winter 1-1934

Volume 43 - Issue 4 - January, 1934

Rose Technic Staff

Rose-Hulman Institute of Technology

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Staff, Rose Technic, "Volume 43 - Issue 4 - January, 1934" (1934). *Technic*. 484.
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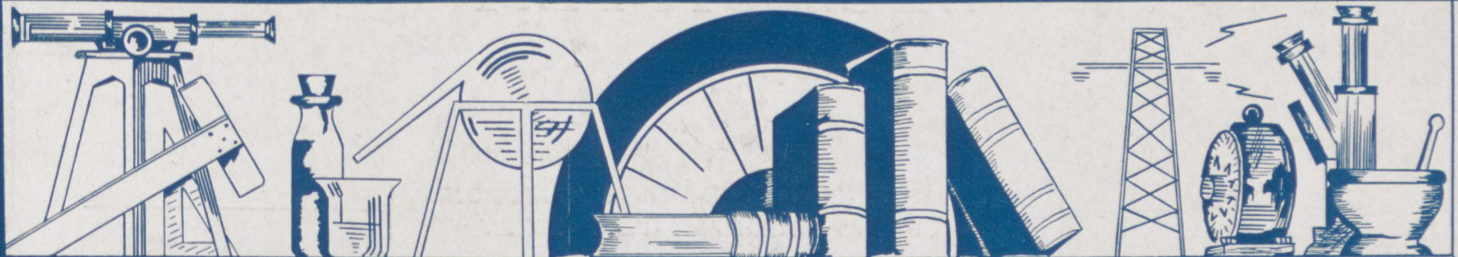
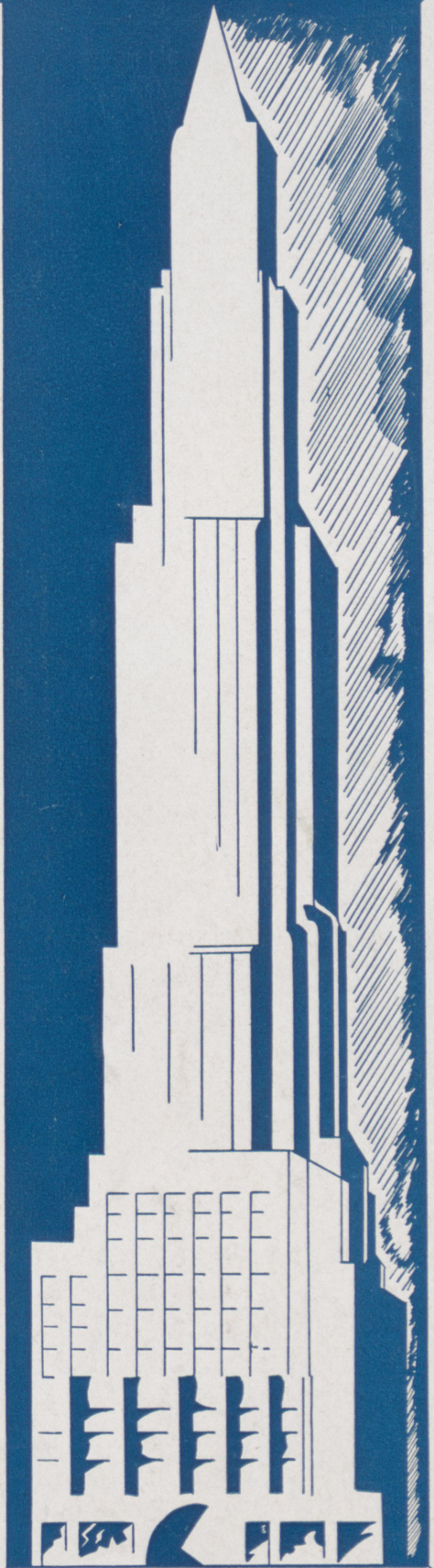
JANUARY, 1934

Vol. XLIII » » » » Number 4

Member Engineering College Magazines Associated

ROSE POLYTECHNIC INSTITUTE, TERRE HAUTE, INDIANA

TECHNIC



The manly art of self-defense



... now applied to telephone cable

Western Electric, manufacturing unit of the Bell System, now makes a tape armored telephone cable ready to meet all comers. When laid directly in the ground, this cable defends itself against moisture, grit, corrosion and other enemies.

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In pioneering and producing improved apparatus, Western Electric contributes to the year 'round reliability of your Bell Telephone.

BELL SYSTEM



WHY NOT TAKE A TRIP HOME BY TELEPHONE?
— TONIGHT AT HALF-PAST EIGHT



Surveying
This
Issue

THE frontispiece this month shows a view of the new Chicago heating plant. This plant serves six customers including the plant itself. An idea of the size of the plant can be readily seen from the view.

THE "Engineer and Construction in Southern Florida" is the title of a very interesting article which describes some of the trends in construction in some of the other parts of the country. Several years the Florida boom caused much speculation in building and construction which has had rather serious results in some instances.

SOME time in December the senior chemists took a field trip to St. Louis and went on an inspection tour of some of the large industrial plants in the St. Louis area. Mr. Toner has written an article describing some of the factories which were visited.

STUDENTS are again reminded of the *Technic* Student Article Contest. A committee has been chosen from the faculty to judge the articles. The contest closes Feb. 1, 1934.

J. J. H.

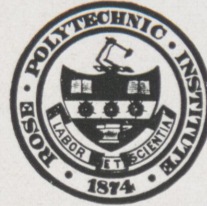


THE



ROSE TECHNIC

Vol. XLIII — Number 4



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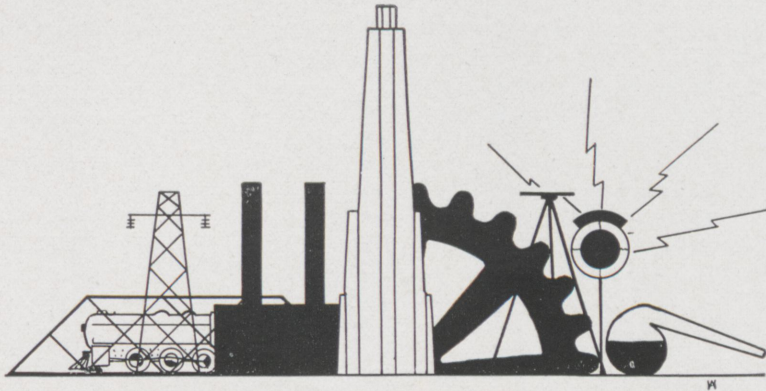
Subscription, per year, \$2.00. Address all communications to THE ROSE TECHNIC, Terre Haute, Indiana. Entered in the Post-office at Terre Haute as second-class matter, as a monthly during the school year, under the Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in 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



Courtesy of Power

Chicago Union Station Heating Plant



THE ROSE TECHNIC

THE TECHNICAL JOURNAL OF THE ROSE POLYTECHNIC INSTITUTE

Volume XLIII

JANUARY, 1934

Number 4

The Engineer and Construction in Southern Florida

By Virgil E. Shaw, c., '35

WHEN cold weather comes to the northern world many people think of the warm weather and pleasures of the popular resorts of southern Florida. Most of the people that have gone to such cities as Miami Beach and Palm Beach are so busy enjoying these pleasures that they seldom stop to think of what great engineering projects were necessary to make that insect infested, swampy part of these United States into one of the most desirable places in which to live.

Any Floridan can tell you the story of the progress of Flagler's Railway System. It was built along the east coast of Florida from Jacksonville to West Palm Beach quite some time before it was extended on to Miami, and finally to Key West, by means of the Over Seas Railroad. Every step of the construction of this railroad system was an extraordinary engineering accomplishment of that time. The building

of this railroad was the first phase in the development of southern Florida. The draining of the everglades was then started by means of canals. The famous Tamiami Trail was started along one of these canals, across the state between Tampa and Miami. This road has been mentioned in history books for years, but it took until 1928 to complete it, as it was across such treacherous ground.

The Boom and it's Affect

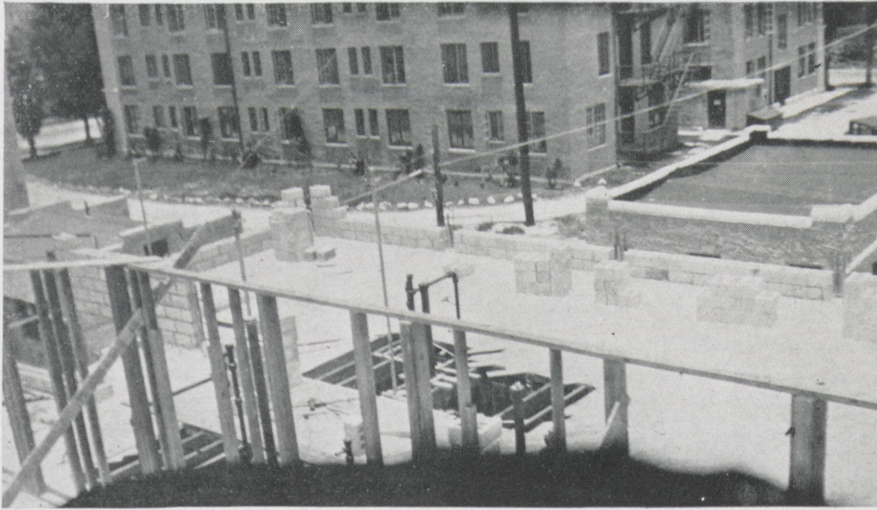
With the increased popularity of Florida a real estate boom was created, and in a period of a few year, very small towns became large cities. To fulfil the desire for water-front lots around Miami the engineers continued to fill, with sand pumped from the bottom of the ocean, the mangrove swamps that raised out of the water between Biscayne Bay and the Atlantic Ocean. This formed what is now Miami Beach. Causeways were made in the bay, in

place of the old wooden bridge, too take care of the increased traffic between Miami and Miami Beach. To make still more water-front lots "Man-made" islands were pumped out of the bay and connected with these causeways. Many similar projects were completed on the west coast around Tampa, also.

All the above mentioned constructions are engineering projects of the past, and one can read volumes about them elsewhere. It is desired in this article to present what the engineers are doing at the present time to improve the construction of buildings upon this land that has been prepared for them.

Most of the architects and engineers of southern Florida are northern men, who came down during the boom. It is natural that they would try to use their northern ideas of construction in this semi-tropical location, but they soon discovered that most of the ideas would not do. This caused the start of a great deal of research work which is still in progress. Wind, moisture, and ventilation are the main difficulties.

It is the general opinion of most people that the occasional high winds, brought to the Florida coast by the tropical hurricanes, are the cause of the greatest destruction to buildings, but this is



View showing the type of construction in use.

not the case. As a hurricane is a straight wind, as the highest velocity attained by these winds is known, and as the strength of materials is known, it is a simple task for the engineer to plan a building to withstand these winds. The ordinary materials in the better buildings all over the United States have the required strength, if they are used in the proper manner.

Poor Construction Common in Boom

During the boom, materials were at such a premium and buildings were in such demand that there were many cases of poor construction; such as laying concrete block or form a wall without any mortar between them but the stucco on the outside and the plaster on the inside that were forced into the cracks when they were applied. There had not been a high wind in a good many years that had reached the Florida coast; so the people, in their frenzy to build something to sell, forgot to remember to construct against some future wind. This factor caused the hurricane that "burst the bubble of the boom" to be more serious than it would have been in ordinary times.

This seemed to be the direct cause for the revision of the building laws of Florida in such a manner that they would insure the proper use of materials. All construction has to be contracted through a licensed architect who

sees that the construction is constructed to meet the requirements of the state laws. As an example of one of these laws to insure safety against wind is the law that requires all buildings built of concrete block to have reinforced concrete lintels above all doors and windows and a reinforced concrete beam around the top of the building. All such requirements would be good building precautions anywhere.

Many of the better homes are constructed under the supervision of a civil engineer, besides the architect and contractor, although this is not compulsory. The city of Miami even maintains an engineering group that will furnish Chemical Engineers to supervise the mixing and pouring of the concrete on any construction in Greater Miami that desires this

cooperation. These engineers test the sand for its percentage of moisture before every pour; so they can set the scales for the proper weight of sand and the cut-off for the proper amount of water to be used to accomplish the desired mix. During the pour they take test cylinders of the concrete; therefore they can tell you how much pressure the concrete can stand after the building is completed.

Moisture a Problem

If southern winds blew tornadoes to the coast of Florida as they do hurricanes, the greatest problem of the builder would then be the wind, but now it is the moisture in the air. Due to the moisture of the air that blows from the Gulf Stream across southern Florida, it is a great task of the engineers to find the suitable preservatives for his materials to withstand this dampness. Concrete and tile are the main constituents of building in the locality, and they are not easily affected by moisture, but most buildings require the use of some wood, metal, etc., that are affected by continued dampness.

The builders choose these materials according to their ability to withstand these effects and yet fulfill their purpose in the construction. For example, where wood is required they use cypress or Dade County pine where possible, as they resist water better than other types of wood. Quite



View of building showing formwork for reinforced concrete.

often after the material has been decided upon, it is treated with preservatives to insure a greater resistance to the moisture. The hidden wood is often painted with creosote, and the metal or wooden casings are given a prime coat of aluminum paint. There are many experiments in progress at the present time to discover even better preservatives than these.

The main item under ventilation is to secure cross ventilation in all rooms, as the winds from the Gulf Stream are always strong and cool; a still air is often oppressing. This would seem easy to accomplish when you think of it, but it takes an architect that is accustomed to this requirement to secure it at all times and yet maintain the desired exterior design of the building. The prominence of the Spanish influence in structural design helps the archi-

tect in this respect, as the common Spanish types, of low rambling buildings, buildings around patios, etc., fit perfectly the needs for cross ventilation. There are influences from other localities, for example the Italian structural design, that require much thought before plans are completed that have both the cross ventilation and the desired appearance. This factor of cross ventilation is left almost entirely to the architect's judgement, but the engineer should always be sure that it is accomplished in all homes of which the construction is under his supervision.

Driving rain causes some trouble, also, but it is common to many parts of the world and does not involve new problems. It does take more precautions than usual because of the types of construction; the great number of win-

dows, required for ventilation makes an extensive use of calker necessary. The use of tile on the roof requires an excellent series of felt and asphalt layers, and even the concrete block walls require that either the stucco or the paint contain water-proofing and that the insides of the walls are furred with small strips of cypress to keep the laths from the walls.

All of the above mentioned difficulties that the northern architect and engineer ran into when they invaded this new locality did not appear to be hard to solve, but they are still demanding a great deal of his time and attention. The research work that they do gives them more interest in their chosen profession and creates better cooperation between the members of the allied professions, engineering and architecture.

The Senior Chemists Visit to St. Louis

By Richard K. Toner, ch. e., '34

On the morning of Friday, December 8, Messrs. Biggs, Brown, Douglas, Ketchum, Moore, Smith, and Toner accompanied by Professor A. T. Child left Terre Haute for an inspection trip to some of the largest industrial plants of St. Louis and vicinity.

The party arrived at the Broadview Hotel, East St. Louis, just at noon time where we were met by our guide Mr. H. E. Wiedemann, '03 and another alumnus, Mr. A. A. Bareuther, '10. Following a very delightful dinner during which Mr. Wiedemann and Mr. Biggs contested to see who could tell the best story, we set out for the Monsanto Chemical Company's plant near East St. Louis.

Mr. K. R. Fox, the caustic soda expert and superintendent of the chlorine plant greeted us and pro-

ceeded to take us through the various buildings. The contact sulfuric acid plant was first visited. Tons and tons of Texas sulfur were to be observed on all sides. This sulfur is very pure as received and without any previous treatment it is *burned* in large Glens Falls roasters, rotary retorts that convert the sulfur to sulfur dioxide, the oxygen coming from the air. Coming in with the oxygen is a small amount of moisture. As some sulfur trioxide is formed in the roasters, a fine mist of sulfuric acid results. This mist is very troublesome and great pains are taken to effect its early removal as it is impossible to transport the gases through ordinary iron pipe until all traces of the acid are gone. A point in chemical economics was brought out here. When asked why the air was not first dehy-

drated, thus preventing the necessity of all the equipment necessary to remove the mist, our guide informed us that it was considerably cheaper to go to the trouble of removing the difficulty than it was to prevent it. After this mist is removed, the gases go to reaction chambers where in contact with vanadium catalysts oxidation to sulfur trioxide occurs. Sulfur trioxide is not readily soluble in water, but it is easily dissolved in 98% (or better) sulfuric acid. By this process a very pure product of any concentration may be prepared.

Several organic product processes were observed, but the next thing of especial importance to us was the caustic soda plant. In this building there were several rows of Allen-Moore cells. These cells operate on currents of about 2000 amperes and voltages of about 3.5 volts. The products of the reaction are sodium hydroxide, chlorine, and hydrogen. The diaphragms are made of asbestos. At this particular plant the effluent liquor containing some undecomposed salt and sodium hydroxide is treated to remove the salt by evaporation in vacuum pans. The caustic is concentrated but not completely dehydrated. The by-product chlorine is liqui-

fied, part being used to make organic esters and part being sold. The hydrogen may be saved or burned, depending on the demand for it.

Other processes were in operation here, but as they were of no particular interest to our party, they were not visited. Of interest, also were the spray ponds and cooling towers that could be seen. Taken altogether, probably no one plant visited provided so much in the way of chemical information. We are certainly indebted to the Monsanto Company for the privilege of this inspection trip.

Cahokia Power Plant Visited

This trip was finished ahead of schedule, so as a sort of surprise Mr. Wiedemann obtained permission for us to see the Cahokia Plant of the Union Electric Light & Power Company. While this particular inspection would no doubt be of more interest to an electrical or mechanical engineer, yet there were a number of things strictly chemical in nature, and all was of more than passing interest to the chemical engineer. We were first shown the preparation of the boiler feed water. An elaborate system of settling basins, softeners, and the like assure feed water that will not form boiler scale. The softened water is distilled before being sent to the boilers. The preparation of the pulverized coal by means of Raymond hammer mills was seen. It was of considerable interest to observe the method used for keeping electric clocks accurate. A standard mercury pendulum clock, regularly checked by observatory signals, is checked against a clock run by the electricity produced at the plant. If the second hand on the latter starts running slower than the master hand, the turbines are speeded up. Conversely, if the electric clock runs too fast, the turbines are slowed down. At any one instant the electric clock may be a second or two in error, but over a period of time it is absolutely accurate.

The reader may be interested in a few statistics on operating conditions and on the principal

equipment.

Annual Load Factor.....	52%
Gross Generation (kwh)	1,051,804,000
Net Output (kwh).....	967,858,000
Pounds of coal per kwh sent out	1.470
B. t. u. per kwh. sent out.....	15,669
Boiler Efficiency	81.7%
Average coal consumed per day (tons)	2,012
Ultimate capacity.....	500,000 Kw

Boiler and Furnaces are made by Babcock & Wilcox Company and are of the cross-drum, sectional header type. There are 19 such boilers installed, each having a horsepower rating of 1801. There are five turbo-generators of 13,800 each and speed 1,800 r. p. m. The largest of these is the 75,000 kw., 17 stage, General Electric, the smallest a 35,000 kw., 23 stage Semi-Double Flow, Westinghouse and a 35,000 kw., 17 stage, General Electric.

It was nearly 6 o'clock when this inspection trip was finished. After cleaning up a bit, we had dinner at which Ed. Dunning, '27 and Claude Gray, '21 joined us. Following dinner, the group sat around and discussed events at Rose, past and present.

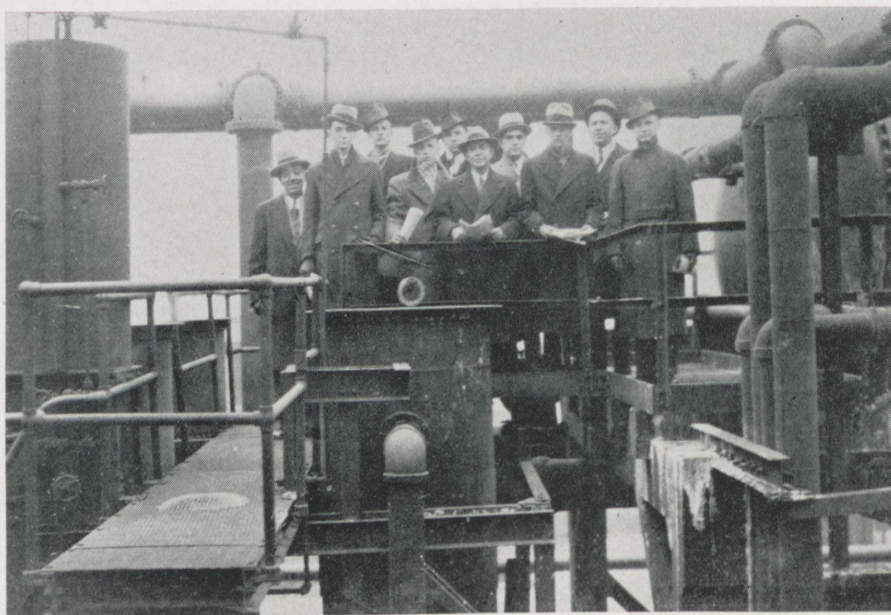
Shell Refineries Visited

The next morning we visited the great Shell Refineries at Wood River, Illinois, where we were welcomed by Dr. C. W. Rippie,

technical expert of the company. We were first shown a motion picture illustrating the various processes employed in the preparation of gasoline, and oil products. We were then given a series of flow sheets showing in detail the reactions and operations to be seen. These are quite valuable, and those present will no doubt file them away for future reference.

With this preliminary explanation we began our inspection trip. To the writer, this was the most interesting trip of all, but space does not permit more than a mention of the processes observed. Among these were the eight topping plants, where the higher boiling point fractions of the gasolines are removed, the re-run stills where after purification the gasoline or other product is redistilled, the Dubbs and Cross cracking units, where under pressure and temperature the oils are cracked to product gasoline and tar, the tar being the residue and the gasoline the principal product. On view here was the first Dubbs plant ever to be built in the United States as well as the second Cross plant to be constructed.

It will be recalled by those familiar with oil technology that both the Dubbs and the Cross systems are what are known as liquid phase cracking units. Further on, we had the opportunity of seeing



Chemists visit St. Louis plants.

a true vapor phase cracking unit. This was distinguished by the immensity of the reaction chambers, the low pressure, and the extremely high temperature (about 1400° C). This particular unit is used largely for the production of very high quality gasoline for special purposes. The control board for this unit is one of the most expensive as well as one of the most complete in the country.

Another unit visited was the stabilizing unit, where butane and pentane, extremely volatile components of cracked gasoline are removed to prevent excessive volatility of the product, thus minimizing vapor lock. Also seen were the plants where the oil is filtered before being sent to the market; the dewaxing plant where, after chilling, the paraffin is removed in the form of petrolatum by high speed centrifugals. This is not needed on asphaltic base oils, but it necessary on paraffin or mixed base oils. We also observed the vacuum distillation plant, where distillation is carried on under vacuum to prevent cracking. The Shell Company also operates complete laboratories at Wood River to test and improve the quality of their product. It was interesting to note that the company used for fuel acid sludge resulting from some of the processes.

Outstanding here was the extreme regard given to safety. The fire hazard around an oil refinery is quite high. Elaborate foamite systems, rigid inspection of all electrical machinery, strict fire rules have contributed to insure safety at this plant for many years. The age of the workmen is also worth mentioning. All the key men were very young, one report being that all were under forty, and we were told that nearly all were college graduates.

Portland Cement Company Last Visited

After luncheon at the cafeteria on the ground, we departed for our last trip, that through the Missouri Portland Cement Company's plant. It so happened that

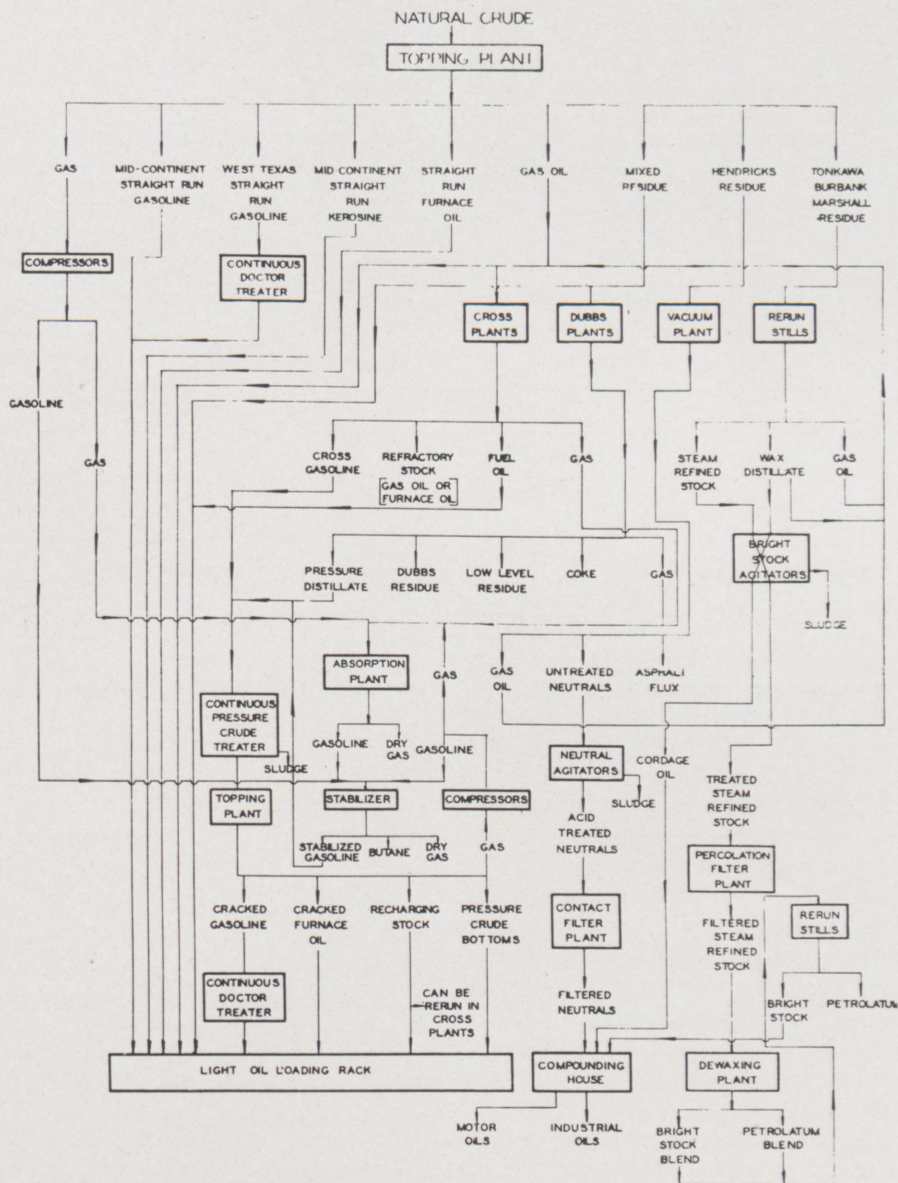


Diagram of oil flow through Wood River Refinery.

the plant was not operating, so we were given the opportunity of close inspection of the apparatus. For example we were allowed to walk into one of the 300 foot rotating kilns. This plant uses the wet process for making cement. We were shown through the plant by Mr. O. F. Schultzke, the superintendent of the company.

The pulverizers, the mixers, the kilns, all were carefully inspected as our guide described their operation. As all upperclassmen are familiar with this process, having had it in the course on engineering materials, it will not be outlined here.

Saturday evening was devoted to the theatre and other St. Louis night life. Sunday morning, For-

est Park, Shaw's Botanical Gardens, the art museum, and Jefferson Memorial were given a hasty once-over. After dinner St. Louis was bidden good-bye and we were homeward bound.

The kindness of our guides, the splendid weather, and the many interesting processes seen, all contributed to the general feeling that the trip was a capital one, not to be equalled soon. In conclusion we, the senior chemists, wish to again express our appreciation to the companies and men who made this trip possible. Especially do we wish to thank Mr. Wiedemann, who left his work for two days, and who went to much trouble to arrange carefully the inspection tours. To him goes the large share of the credit for the success of the whole trip.

THE ROSE TECHNIC



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Keeping Industrial Minded

The engineering student should keep in mind the fact that regardless of the type of engineering work he hopes to specialize in, whether it be plant control, plant management, industrial research, or the like, he is dealing with large scale operations which differ in application if not in principle from his own laboratory experience.

The upper classman especially should cultivate the habit of industrial mindedness, the habit of looking at each theory and each laboratory exercise from the industrial point of view. Only in this way will the graduate be fully prepared to step out into the industrial world.

There are various ways of attaining this objective. The most obvious, but often the least practicable is that of taking field trips and seeing the process actually being performed. For schools located in the midst of many industries, this perhaps may be the best way, but the Rose student can not hope to see more than a half dozen or so plants in operation during his college life. Each plant trip is of inestimable value to the student who keeps his eyes and ears open and correlates his experiences with his text knowledge.

Another method of becoming

industrial minded is offered by the college itself. Attempts are made to give the student an opportunity of making certain industrial experiments for himself. But at the best the process is the small scale type and similar to the so-called "batch operation." So while this is an important step in the evolution of the engineer, it is in itself not sufficient.

The outstanding opportunity offered, though too often neglected, is through the medium of the trade journal. If the curriculum were not already so crowded, we should suggest a course in journal study. This is not practical perhaps, but it is certainly possible for the individual student to make such a study for himself. A careful perusal of the advertising pages is very informative. Equipment is so illustrated and described that, stripped of the obvious advertising, it is much more important than that found in text books because it is up to date. Accounts of engineering achievements as described in such magazines not only illustrate how far it is from the test tube to the finished product, but also serve as an inspiration to the student engineer. Valuable books and pamphlets are reviewed or mentioned in these periodicals. If the

student can subscribe for these journals he should, so that he may keep them in his library. But if he cannot afford them, they may always be found at the libraries.

By correlating his text-book knowledge with that obtained from his laboratory, field, and journal knowledge, every graduate may feel confident that he has kept industrial minded.

Rose Show

It will be of considerable interest to the alumni and friends of Rose to learn that the unfavorable vote on the Rose Show, followed by a student petition, discussion, and revote, has been changed to favorable action on the part of the faculty.

This decision was to the effect that in the spring of 1934 the fourth biennial show be held, the organization of the same to be left to Dr. Prentice. At this writing the exact nature or organization of the forthcoming show has not been announced.

It seems to the writer that the complete success of the previous shows would be an argument against any radical change in the nature of the show or organization of it. This does not mean that in organizing the personnel of the show administration greater care should not be exercised in getting the proper men in the various executive positions, or that the number of the exhibits could not be altered, or that more of one type of exhibit should be used, or that greater care should not be taken to see that every man gets to work in a congenial place. But it most emphatically does mean that a radical change in type or administration is unwise and undesirable. It would be better to seek to improve on previous shows, rather than a complete change with the unavoidable troubles and errors that would creep in.

It is obviously impossible to please everyone in designing and preparing the exhibits. Let us hope, however, that an effort will be made to please the majority. Then let the minority forget themselves and work with the rest toward the success of the

undertaking. Practically a hundred per cent of the student body have signified their full cooperation so there seems to be no reason to believe that the show will not be a big success.

Assemblies

A few months ago there appeared on these pages an editorial with this same title. We may be criticized for saying that which is obvious, but our desire is always to be fair in our criticism, and when an error creeps in or where the evil has been corrected we wish to let our outside readers know it.

At the time that editorial was written it was the policy to have an average of three assemblies a month and these came to be looked on as a necessary evil to be avoided whenever possible. The speakers often spoke on subjects which actually insulted the intelligence of the average student. A good assembly was a rarity and no one thing was criticized so generally as the weekly assembly.

For some reason the authorities decided to cut the number of assemblies to one a month. The effect has been little short of unbelievable. Practically no one has a bad word for the assemblies today. The speakers credit their listeners with more than average intelligence. Their subjects are those completely outside of engineering, but are of vital interest to the well informed student. Consequently, most students look forward to the monthly assembly with pleasant anticipation. The subjects presented are frequently talked over in individual groups for several days afterwards.

We wish to express our appreciation to those in charge for this change. We hope the quality of the assembly remains at its present height.

Perseverance

The quality of perservance or

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"stick-to-itiveness" is regarded as one of the prime factors of success. Certainly we can find sufficient background for this assertion in the lives of many great men. But sometimes perservering gets a man no place. Here too we can find historical evidence.

Consider the case of the old alchemist. There have probably been few men who had this quality to such a degree as Bernard Trevisan and those like him. A lifetime was not too long to spend in the search for the philosopher's stone. Many years were required for each experiment. Excitement would be raised to the heights only to be dashed to the ground by utter failure.

Hope was never gone. These men would travel, read, repeat the experiments. Although failure would be their only result they stuck to their goal. The reader has no doubt sensed the fallacy of the comparison. It was not the quality of perserverance that was at fault, it was a false goal, an impossible one.

After some experimenting in the field of engineering, the student may find after examinations have been completed that his efforts have been in vain. It is time to take stock of himself and his goal. First, has he made an effort? Does it seem as if it were

impossible to grasp the engineering fundamentals? Is he disappointed in engineering, is it what he thought it was? If the student is convinced that he still wants to continue his work, let him remember that in all probability he may get his rewards if he will work for them. However, if it is obvious that his goal is false, it is wise to recognize the fact and look to new fields to conquer. It is wise to perservere: it is foolish to waste time.

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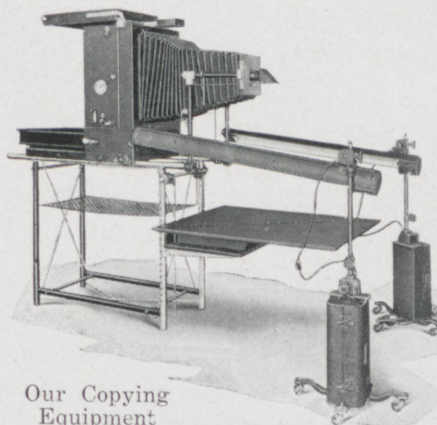
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SPORTS

Edited by
Harry H. Richardson,
 m., '35



- Oct. 13—Normal, Memorial Stadium, Terre Haute.
- Oct. 20—Wabash at Crawfordsville.
- Oct. 27—Evansville, here.
- Nov. 3—Earlham, here.
- Nov. 10—Oakland City, here.

Intramural Basketball

IN accordance with the intramural athletic program, introduced at Rose two years ago, a very good basketball league has been formed under the direction of Coach Phil Brown. This year there are six teams in the league; one from the chemical department, one from the electrical department, two from the mechanical department, and two from the civil department. Last year a number of games had to be forfeited because of the scarcity of players in the chemical and electrical departments. At that time each department had two teams. Now this trouble is being avoided as the electrical and chemical departments have only one team each and their relatively few players will not be divided between two teams. In the other two departments the seniors and sophomores compose the "A" team, and the juniors and freshmen go together to make up the "B" team. This makes two teams in each of these departments and complete the roster of the league.

The team now called the Civil B's was crowned champion last spring. They have the same team this year with the exception of Homer Fisher, who graduated last June, consequently they are the favorites in the title race.

Last year's runners-up, the Mechanical B's, lost three first

string men through graduation, and are therefore not quite the threat that they were last season.

The Mechanical A's are considered good. They have a number of former Terre Haute and Brazil high school players and should be real contenders for the league championship.

The Civil A team has the same men as last year, when they finished well up in the standings and were always difficult to defeat. This year they have shown no tendency as yet to lose one bit of their reputation.

The Chemical team, while not standing much chance of winning the championship, is due to put a number of dents in the ambitions of more than one team. They are a fighting outfit, and are plenty tough to beat.

The Electricals, although they have not yet shown much ability as a team, are not to be taken too lightly. They won a number of games in the last few minutes last year with the same outfit and are sure to repeat this year.

At the present time the Civil B's are in the lead. The Mechanical A's are second, closely followed by the Mechanical B's, the Chemicals, and the Electricals. Here is the dope on the "win and lose" side of the schedules.

TEAM	G	W	L	Pct.
Civil B	5	5	—	1.000
Mechanical A.....	5	3	2	.600
Mechanical B.....	5	2	3	.400
Chemicals	5	2	3	.400
Electricals	5	2	3	.400
Civil A	5	1	4	.200

During the month of January the intramural schedule will have to be continued without the presence of Coach Brown. Coach was stricken with an old illness of some sort, and had to be in the hospital the major part of the month. It is because of his wish that the schedule would not be held up, that a so-called board of referees has been formed, composed of about ten students under the supervision of President Prentice. There will be two referees at each game who will also take care of the issuance of equipment in addition to the refereeing of the ball game. We surely hope that Coach will be back with us soon.

1934 Football Schedule

COACH Phil Brown has already succeeded in filling the Rose football schedule for 1934. The season will consist of only seven games instead of the usual eight. This shorter season is not due to the fact that games cannot be obtained, but rather due to the fact that the fall mid-term examinations begin on the 12th of November, which is a week earlier than usual. Games cannot be scheduled earlier in the season because of the short time available for practice.

Next year's schedule has only one newcomer to the followers of Rose athletics. This team is the representative of St. Joseph College of Collegeville, Ind. Not a great deal is known at the present time about the strength of this team, but we are always glad to see a strange team upon the schedule.

- The schedule is as follows:
 Sept. 29—Franklin at Franklin.
 Oct. 6—St. Joseph at Collegeville.

Lineups of Intramural Basketball Games

Electricals—13			vs.	Chemicals—15			
F.G.	F.	P.		F.G.	F.	P.	
F. Straw	1	0		F. Walker	3	0	1
F. Montgomery	0	2		F. Wodicka	1	0	0
C. McKee	0	0		C. Utter	0	0	2
G. Presnell	0	0		G. Garmong	1	0	1
G. Mewhinney	4	1		G. Price	2	1	0
				F. James	0	0	0
				C. Huffman	0	0	0
				G. Moore	0	0	0
Total	5	3		Total	7	1	4

Mechanical B—11			vs.	Mechanical A—15			
F.G.	F.	P.		F.G.	F.	P.	
F. H. Richardson	2	2		F. Campbell	0	0	3
F. Nelson	0	0		F. Kasameyer	3	1	2
C. Cushman	1	1		C. W. Moore	0	0	0
G. Bradley	0	0		G. Spain	0	1	1
G. Lowman	1	0		G. McAnninch	1	1	1
				F. Wilson	0	0	0
				C. Leever	0	0	0
				G. Howard	2	0	0
Total	4	3		Total	6	3	7

Civil A—16			vs.	Civil B—18			
F.G.	F.	P.		F.G.	F.	P.	
F. Belstrom	0	0		F. Mayrose	0	0	2
F. Engle	1	1		F. Colburn	0	0	0
C. Merriman	2	1		C. Ricketts	0	0	0
G. Tait	2	2		G. Eyke	1	0	0
G. Yates	0	0		G. Bard	0	0	0
F. Thompson	0	0		F. Butler	2	0	2
				C. Hess	2	0	0
				G. McEowen	0	0	1
				G. F. Richardson	3	2	1
Total	5	4		Total	8	2	6

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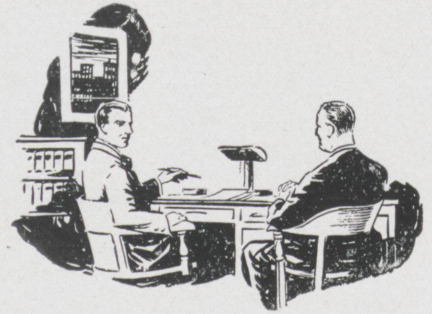
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Alumni

Edited by Jay F. Hall, e. '35



Here and There With The Grads

'90 Samuel Dunlap Collett died at his home in Brooklyn, N. Y., Dec. 26, 1933.

'99 George H. Likert is recovering from an illness that has kept him six weeks in the hospital. Mr. Likert lives in Omaha, Nebraska, and is fuel engineer with the Union Pacific System.

'03 William A. Peddle has been made manager of his company, the Ramapo Ajax Corporation, at Superior, Wisconsin.

'04 William H. Hazard who has been with Fairbanks Morse and Company has been transferred to Beloit, Wisconsin, where he is division engineer.

'06 Harry R. Canfield who took his LL.B. degree from the Cleveland Law School in 1931 is a member of the firm of Slough and Canfield, Patent Lawyers, of Cleveland.

'08 Herbert H. Boyd is Building Superintendent for the Missouri State Highway Commission at Jefferson City.

'11 R. Nelson Hickman is assistant to the President of Lehrenkrauss Mortgage and Title Guarantee Company at Brooklyn, N. Y.

'13 G. Gilbert Overpeck is Salesman for L. F. Baker Company of Keokuk, Iowa. His headquarters is at Indianapolis.

'15 Charles E. Downing is with the Binkley Coal Company at Prickneyville, Illinois.

'17 Chester A. Williams is the Georgia Distributor for Thomas A. Edison Inc. Ediphone Division, at Atlanta, Ga.

'18 Ralph E. Price is now with the Wilson and Company at Danville, Virginia.

'20 Whitecomb W. Moore, who is with the A. T. & T. has been transferred to Chicago. His address is 315 W. Washington Street.

Kenneth M. Huston is working on special development problems for the Mutual Chemical Company of America, at Baltimore.

'21 C. Richard Voges is Chemist for the Magnolia Petroleum Company of Beaumont, Texas.

'22 Floyd F. Hunt is Inspection Supervisor for the Prest-O-Lite Company, Inc. of Speedway City, Indianapolis.

Eugene S. Whitlock is a manufacturer's representative for power plant equipment and supplies, and is located at 926 Dakin Street, Chicago.

Hal H. Dronberger is general still foreman with the Pure Oil Company at Nederland, Texas.

'23 Buford W. Tyler, who is with the Pennsylvania Railroad, has been transferred to Trafford, Pa.

Robert T. Hendrich is Sales Engineer for the Ferro Enamel Corporation of Cleveland.

Robert O. Cash with the DuPont Company now has his headquarters at Denver, Colorado.

'24 Alexander L. Sherwood is General Manager of the Rockford Broadcasters Inc. of Rockford, Illinois.

'26 Peter J. Burt is now with the National Malleable and Steel Cast-

ings Company of Cleveland, Ohio. Ernest O. Johnson with the R. C. A. Victor is now at Camden, New Jersey.

'28 Robert F. Alexander with the Pennsylvania Railroad is now located at Lewiston, Pa.

Andrew J. Nehf with the Tennessee Valley Authority is located in Knoxville. He is working on plans for streets, sewers, water supply, etc., for the town of Norris.

'29 Carl G. Planck is Principal of the Courtenary School at Charleston, South Carolina.

'30 Eldridge D. Allen is employed by the American Can Company at Indianapolis.

Jim S. Brevoort is now with the Tennessee Valley Authority at La Follette, Tennessee.

'31 Allen G. Stimson with General Electric at Schenectady is in the Air Conditioning Department of the design engineering division.

E. Joe Earl is Assistant in the Survey Section, N. S. Engineer Office, at Kansas City, Missouri.

'33 Charles B. Sipple has a position in the testing department of the Dole Valse Company in Chicago.

We add to our Roll of Honor

Barton R. Shover

BARTON R. SHOVER, '90, was signally honored at the recent annual meeting of the Association of Iron & Steel Electrical Engineers, when he was awarded first prize in their "New Uses for Steel" contest.

For some time past the steel

industry has endeavored to stimulate trade and thus increase employment by strenuous efforts toward a reduction in the cost of operation, but as decreased cost usually involved an increase in production the A. I. & S. E. E. conceived the idea of a contest which would assist in utilizing such increased production. To make this effort as successful as possible, the contest was open to everybody so that suggestions were received from men representing all branches employed in the industry, except the sales departments.

In order to insure fair competition, forty judges were given only the suggestions, without knowledge as to their source.

Mr. Shover's suggestion — "Manufacture of bath rooms on a production scale." Hotels and apartment houses each have many bathrooms which are duplicates, nor are there many types of bathrooms in modern private dwellings. It is suggested that complete bathrooms be assembled in factories and shipped to destinations where they would be placed in position, three pipes and two electric wires connected, and the room ready for use. The room would consist of a steel frame, lined inside wholly or in part with sheet steel, finished in baked enamel, lacquer, or even paint. Floor and as much of the walls as desired could be tiled. Several years ago, one of the large manufacturers of appliances experimented with enameled bath tubs of pressed steel, but found that when the tub was stiff enough to prevent cracking the enamel no saving resulted. The Briggs Manufacturing Company of Detroit, has recently perfected a stamped steel enamel sink, made from No. 14 gauge sheet. Stamped steel bath tubs and lavatories are promised by the same concern. Should the "weaving" of the light gauge tub tend to crack the enamel, the inside could be chromium plated. Lacquer interior finish would be attractive, particularly to apartment houses, because the color scheme could be cheaply changed to suit the ideas of the new tenant. Because each bath-

room is now an individual job the labor cost is excessive. Quantity production would greatly reduce this cost and the saving would eventually benefit the purchaser. The most serious difficulty to be overcome in introducing this type of bathroom would be antagonism of the labor unions."

Mr. Shover is a Past President of the A. I. & S. E. E. and one of its founders, along with two other Rose men, S. S. Wales '91 and James Farrington '96. He entered the industry in 1895 as a crane inspector five years after his graduation, the intervening period having been devoted to street railway and electric lighting construction and operation. In 1898, he rose to the position of Chief Electrician of what is now the Ohio Works of the Carnegie Steel Company. His service in this position merited the advancement he received in 1906 to the position of Electrical Engineer for the Gary Plant of the Indiana Steel Company, which was not only the first completely electrified plant, but also the largest individual industrial installation of electrical equipment in the world. Four years later, he was transferred back to Youngstown to assist in designing and building the McDonald plant of the Carnegie Steel Company.

In 1912, Mr. Shover was appointed General Superintendent of the then newly organized Brier Hill Steel Company, and while with them he built and put in operation their steel works and rolling mills. Two years later he went to India as General Manager of the Tata Iron and Steel Company, and since his return to this country late in 1916, he has been continuously engaged as Consulting Engineer, with offices in the Oliver Building, Pittsburgh, Pennsylvania. In 1917, as the result of Mr. Shover's professional record, Rose conferred upon him the degree of Electrical Engineer. In addition to his long membership in the Association of Iron & Steel Electrical Engineers, he is a Fellow of the American Institute of Electrical Engineers, and a member of the American Iron & Steel Institute and the Engi-

neering Society of Western Pennsylvania, and has contributed many new ideas and inventions leading to the advancement of the industry.

The following is quoted from Iron and Steel, a magazine published by A. I. & S. E. E.: "The award of the First Prize for a factory built bathroom was merited by the novelty of the suggestion, the possible steel requirements and the resultant saving in the cost of building construction. Those who have observed the construction of hotels, apartment houses and similar buildings, have undoubtedly noted the piles of bath tubs, wash basins and other plumbing fixtures scattered about the premises. The time required to install this equipment in the small space allotted to it, and the skilled labor necessary for such work results in a large item in building costs.

Since the great majority of bathrooms in any one of such buildings are duplicates, they could be completely assembled in a factory, using the straight line production method so thoroughly developed by the automobile industry. The entire structure is then shipped to its destination, placed directly in final position, two water supply pipes, one drain pipe and two electric wires connected, thus completing the installation.

The walls of the room could be tiled, enameled or painted as requested by the purchaser. Lacquer would permit quick and inexpensive refinishing to suit the taste of each new tenant in apartment dwellings. While the assembled room could be equipped with cast iron or porcelain appurtenances, pressed steel tubs, etc., were suggested, as they could be designed with equal sanitary advantages and even better appearance."

Mr. James E. Goddard, class of 1928, was married December 28th to Miss Mildred E. Jones of Baton Rouge, La. He is director of the Engineering Division of the T. V. A.—C. W. A. office. They will live in Knoxville, Ky.



Campus Activities

Edited by

Daniel Overholser,
ch, e., '36

Faculty Party

On Friday night, December 15, the members of the faculty and their families enjoyed the annual Christmas party at Deming Hall, given by the Faculty Women's Club.

At 6:30 the dinner was served to about sixty persons in the dining room of the dormitory. The tables, decorated for the occasion, were grouped about the Christmas tree which had been so handsomely set up by Professor Knipmeyer. After the dinner was served, the tables were removed to provide space for dancing, while others withdrew to the social room for bridge.

To Mrs. Hopkins, who acted as general chairman for the affair, to Professor Knipmeyer for the lovely tree, and to Miss Gilbert and Miss Mahley and all others whose efforts made this party a success is due a word of thanks and appreciation.

An Advantage to the Student

It is of interest to the student body to announce that the cumulative average requirement which gives the student excused absences at all times has been lowered from 2.8 to 2.5 by action of the Faculty. This should give several more students the privilege of unrequired attendance.

Rifle Club

Up to the present time the Rifle Club has arranged for the season twenty-two matches, all of which are to be held with outstanding schools. Three shoulder-to-

shoulder matches have been arranged for the last of the season. The first match will be held during the week of March 5 to March 11. Some new targets are being added to the rifle range in order to increase its shooting capacity. There are several awards to be issued at the close of the season.

The indoor range under the supervision of Sarge Kearns is now open to all members of the Rifle Club and to other students who wish to join in this indoor sport.

Military Ball

The outstanding social event at Rose, the Military Ball, sponsored by the Tau Nu Tau military fraternity, was held on Saturday evening, December 16, 1933, at the Terre Haute County Club. Over two-hundred persons were served at the three-course formal banquet held in the dining room of the country club preceding the ball. The music was furnished by Joe Sander's orchestra. To convey the military effect the platform on which the orchestra was mounted was surrounded with sandbags. The ballroom itself was decorated in golden shaded wall-lamps, flags, and rose and white streamers. A public address system made the music easily and distinctly heard in all parts of the ballroom.

The receiving line included: Mr. and Mrs. J. R. Motz, Dr. and Mrs. Donald Prentice, Captain Stevenson and Miss Mahley, Professor and Mrs. R. E. Hutchins, Professor and Mrs. C. C. Knipmeyer, Mr. and Mrs. H. N. Chinn,

Lieutenant and Mrs. P. R. Garges, Warrant Officer and Mrs. Sylvester Kearns, and Mr. and Mrs. Paul Smith.

Tau Nu Tau honorary military fraternity, proudly lays claim to the distinction of giving Rose's outstanding social even of the year.

Debate Club

On December 29, tryouts for the Rose Debate Teams were made at the Dormitory. Dr. Prentice, Dr. Hoel, Mr. Moench, and the faculty sponsor, Mr. Bloxsome, were the judges. As a result of these tryouts the following teams are announced:

First Speaker: Affirmative, Edward Coons; Negative, Ezekiel Hamilton.

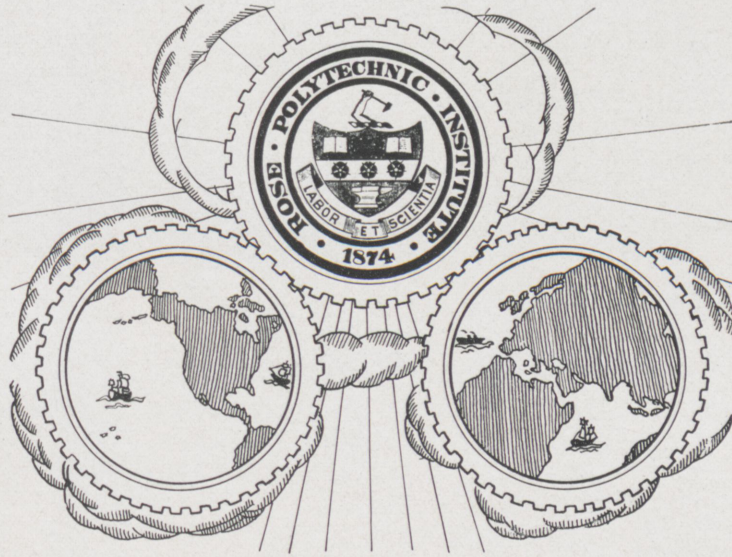
Second Speaker: Affirmative, Warren Sentman; Negative, Richard K. Toner.

Third Speaker: Affirmative, Harry McGurk; Negative, Gordon Burt.

The subject being debated in the Indiana Debating League this year is: Resolved, That the present policy of Japan in the Far East be approved.

The season for our debaters will open at the annual tournament at Manchester College, February 23 and 24 when they will oppose teams from four or five other colleges.

In the last few years the activities of the Rose Debate Club have increased both in extent and importance and our teams deserve the enthusiastic support of every Rose man, especially at their home debates.

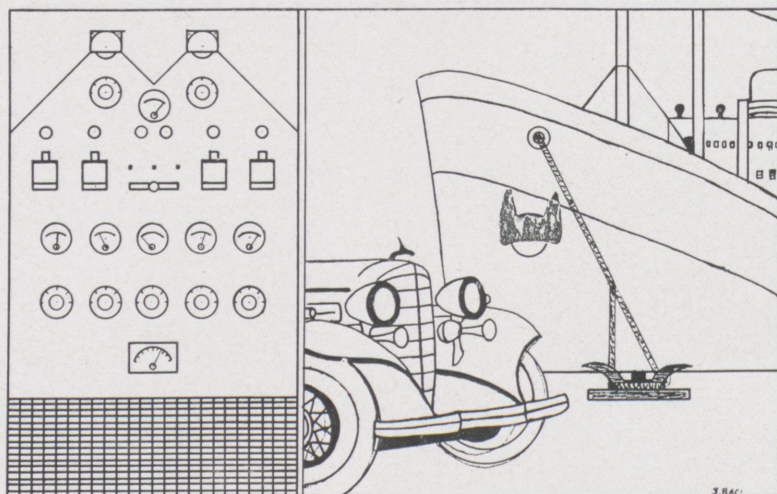


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Research and Progress

Edited by
John A. Ritter, m., '34



New Speed of Light

For many years the speed of light has been known, but the accuracy of the measurements was not definite enough for some scientists. Dr. Michelson in 1927 placed the speed of light at 186,284 miles per second after he had flashed light beams with mirrors from Mt. Wilson to another mountain near by. He was not satisfied with his result though and had a mile long vacuum tube built on the Irvine ranch near Santa Ana, Cal. His intention was to flash the light beam by means of a revolving mirror back and forth through the tube. Unfortunately he died before he completed his experiments, and his work had to be carried on by his colleagues.

Dr. F. G. Pease, of the Mount Wilson observatory, and Mr. Pearson, University of Chicago, carried on the work and completed their observations in February of 1933. Since then they have been calculating an average of the many observations made. Dr. W. S. Adams lately announced that the results obtained to date show that the speed of light as 299,774 kilometers or 186,271 miles per second. This is not absolute but the final result, which will take some six months to complete, will not differ more than two kilometers from these figures.

One thing which has caused considerable comment is the fact that there were fluctuations which might indicate variations in the speed of light, but these possibly can be accounted for through conditions affecting the instruments used. The speed of

light has always been regarded by scientists as one thing that never changes. All measurements in astronomy are made by using the value, and if it were found that the speed varied then all previous calculations would be faulty and consequently would strike at the proof of the theory of relativity.

Dry Water

One of the most recent achievements of science is that of making "dry" or "heavy" water. Professor Harold C. Urey of Columbia University discovered the heavy hydrogen which is necessary in the manufacture of the new liquid and Dr. E. W. Washburn of the U. S. Bureau of Standards developed the process for making it. Its dryness is one of the series of strange things found during the last few months since laboratories all over the world have been making and experimenting with it. As yet the process is a costly and lengthy one so that the amounts produced have ranged from a mere thimbleful to a pint. It has the appearance of everyday water and seems to "wet" other objects in much the same way. No one has reported tasting it yet, for it is too precious and no knowledge is had as to whether it is poisonous or dangerous to drink.

The "dry" water is so dry that it absorbs the ordinary tap water when in contact with it or the moisture in the air. To prove this one needs only to leave an open beaker of it exposed to the atmosphere for a few minutes. After a very short time the pres-

ence of ordinary water will be found in the container.

It has been found that the moisture from the breath of the persons working interferes with the production of the precious liquid which is made by an electrical evaporation process. Chemists have stated that a "desiccated" laboratory probably would be the best place for making it.

This astonishing property of dryness is suggested as the explanation why small guppy fish die in half an hour in the heavy water from which they obtain oxygen, thus killing them by drying them out.

Scientifically the heavy water would come under the class of hygroscopic substances which are used in many manufacturing processes to absorb the troublesome moisture. The commonest hygroscopic is glycerin, often used in small amounts to keep excess wetness out of cigarets.

This heavy water exists in ordinary water in the ratio of about one part in five thousand. As yet no commercial use has been suggested, the material being a more or less scientific plaything, but it is expected that some practical use will be found for it once its production has become simpler and cheaper.

Photographic Defects

Often a machine is designed and built on sound and proved principles, but when put in operation fails to function as it should. In the case of parts which move too rapidly for the eye to follow, it has been found that recourse to

slow motion moving pictures has been a satisfactory solution. Many baffling problems have been solved by this method when it has been impossible to check up on the failure in any other way.

As an example, one firm found that a high-speed addressing machine which they manufactured jammed in the envelope in-feed. No increase in the efficiency of the design could be obtained by regular methods, so a micromotion outfit was arranged to take a close-up of the feeding mechanism. The feeding pawl, which was assumed to be the seat of the trouble, was painted white to facilitate following its motion. Motion pictures taken at 4000 exposures per minute disclosed that the feeding pawl vibrated at one time and not at another. Each time the pawl vibrated it failed to feed an envelope. Not only did the pictures show the effect stated above, but they registered the time by means of a high-speed stop watch so that at least a reasonable approximation of the duration of the oscillation could be obtained. With this information the designers were able to effect improvements immediately. This method of "trouble shooting" probably will be used more and more in the future.

1,000 Deg. Steam

Many tests have been made to determine the thermal performance of the 10,000-kw turbine generator designed for 1,000-deg. steam at the Delray plant in Detroit. Experts have disagreed for a long time on the advantages and disadvantages of such a plant.

Now complete results of tests have been presented to the public.

The energy consumption of the complete unit was 10,730 btu. per kw.-hr. for a load of 10,000 kw, with a throttle pressure of 390 pounds per square inch abs. and a temperature of 1,000 degrees F. exhausting at 1 in. abs. This means an engine efficiency of 76 per cent for the complete unit and a thermal efficiency of 31.8 per cent.

It was found that by increasing the steam temperature from 700 up to 1,000 degrees the energy consumption was reduced by 920 btu. per kw.-hr. or 7.9 per cent. Radiation and convection losses from the turbines and heaters with the higher temperature were relatively small, being only 0.6 per cent of the available energy for the load of 10,000 kw. The loss due to the leakage of the sealing steam was rather great, being 4.4 per cent of the available energy. This is probably not an inherent characteristic of large turbines designed for high temperatures.

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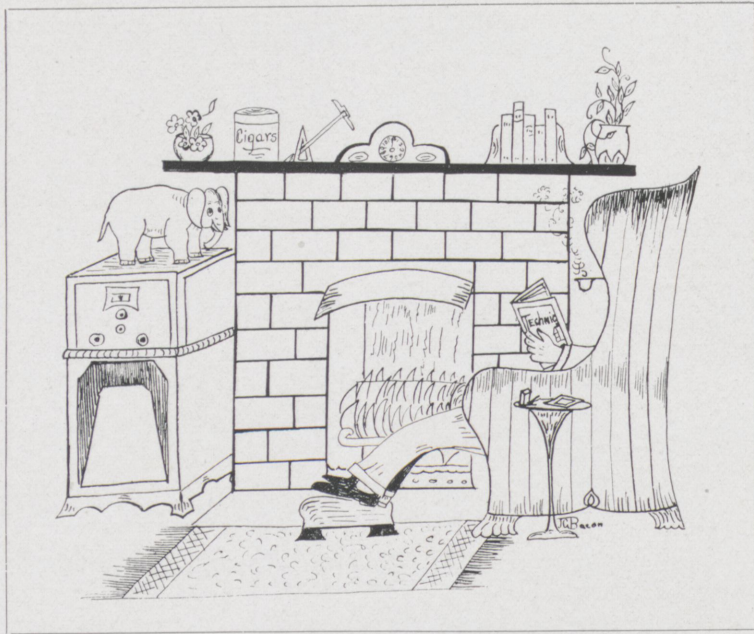
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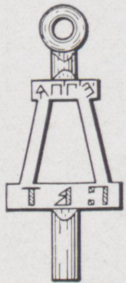
Fraternity Notes



in Indianapolis.

During the Christmas holidays a number of the rooms in the chapter house were redecorated, and the house is now in excellent condition.

Tau Beta Pi



The December issue of the Council Bulletin of Tau Beta Pi, mentions with commendation that "Indiana Beta has established a rather novel variation of the scholarship prize for underclassmen.

... The reference is to the prize to be awarded at the end of this term to that student in the upper third of the sophomore class who has made the greatest improvement in his scholastic average over that of the preceding term.

The same issue names Indiana Beta as one of the relatively few chapters on the Honor Roll of subscribers to "The Bent of Tau Beta Pi."

Blue Key



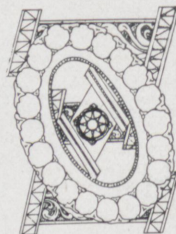
On the night of Dec. 12, the Rose Polytechnic chapter of Blue Key national honorary fraternity initiated its first member from the present junior class. Earle B. Butler, president of the class of

'35 was the man honored. The initiation took place after a banquet at Woody's Tavern south of the city, and was followed by the showing of a reel of movies taken at the Institute.

We have inaugurated a plan for bringing to the attention of Rose men various plans by which they can nourish traditions on the campus and spread information about Rose among outsiders. This we hope to do through Blue Key notices on a bulletin board in the main hall. These notices will be changed periodically and will embody "worthwhile" suggestions from any students.

Arrangements are now being made for a Blue Key dance on Feb. 9, the two-fold purpose of which will be to furnish a school dance open to all students, and to raise funds for service projects for the school. Details of this dance will be announced elsewhere.

Theta Xi



On the night of Dec. 19 Kappa of Theta Xi held a Christmas party. It was well attended by both active and alumni members of the fraternity. We were very happy to have Professor Gray of the faculty as our guest.

Word has been received recently from Bob Laatz who is working on the Madden Dam project in the Canal Zone. Paul Carter has been transferred to Washington, Davis County, Indiana, and Henry Nancrede is now stationed

Alpha Tau Omega



The pre-Christmas season was climaxed by a formal dance held at the Terre Haute House on December 20.

Music was furnished by Joe McCartney and his "Masters of Melody." Ernest Welsh was in charge of the dance and it was one of the best dances of the chapter's history.

After the return from the Christmas vacation, plans were completed for rush season and house cleaning and other preparations are well under way.

George Kessler '30 of Gamma Gamma, who is now maintenance engineer for the A. T. & T., spent a week at the house just before vacation while he was working at the Terre Haute station of the company.

Sigma Nu



Beta Upsilon of Sigma Nu desires to take this opportunity to extend the best wishes for a happy and prosperous

New Year to all members of the faculty and student body of Rose Polytechnic.

After having spent a very enjoyable vacation at their respec-

tive homes, men of Sigma Nu are now hard at work getting the house in the best possible shape for the coming rushing season. All of the walls are being cleaned and the floors varnished. Some of the woodwork and furniture is being done over and several rugs have been purchased.

We are very sorry to hear that one of our members, F. Jackson Landenberger, was forced to spend his entire vacation in the hospital. We are all wishing him a speedy recovery.

Alpha Chi Sigma



Iota chapter of Alpha Chi Sigma is confident that 1934 has much in store for it. Events scheduled for the future are: The January meeting will be in honor of our district counselor, Dr. Marvin C. Rogers. The freshmen pledges led by Charles Rich are in charge of the program. The sophomore pledges will present the program for the February professional meeting. In 1934 the Rose chapter will celebrate the twenty-fifth anniversary of its founding. The juniors will have the honor of preparing a suitable program for this occasion. Definite plans for the remaining meetings have not yet been made.

Plans are being rapidly completed for the national conclave for which Iota is one of the hosts. Messrs. Toner, Smith, Moore, Ketchum, Douglas, and Cavan-

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FRED G. HEINL
 129 So. 7th St.

ugh are on the committees in charge of this event.

Iota desires to take this opportunity of wishing the other fraternities at Rose success in the coming year.

Theta Kappa Nu



The Christmas Formal was held at the chapter house, 31 S. 13th St., December 23, 1933.

W. S. Biggs was the chairman of the event, and was assisted by Charles Evinger and Eugene Wilbur. The house was decorated and an orchestra was secured, everything that goes to make a TKN dance. The dance was enjoyed by all present including the alumni who came back for the dance.

The chapter turned out in full for the Military Ball December 19, and we all had a swell time. Some of the alumni who were back for the ball were: James Cantwell, James Guymon, William Lindeman, William Haynes, Charles White, and Harold Powell.

ROSE POLYTECHNIC STUDENTS

*Who Like to Save Money
 Always Buy Their Shirts,
 Neckties, Underwear and
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GREYHOUND BUS STOP

For Special Parties, Dinners—Phone Seely 2837

Power Losses

Edited by Nelson B. Trusler, e., '35

It seems that some of the boys from the dormitory were thumbing a ride into town the other day. After waiting for what seemed like hours, a couple of fellows with kind hearts and an empty back seat stopped and gave said boys their hoped for lift to town.

"Go to Rose Poly?" one of the men queried.

"Yes," came the reply, and thereby hangs the tale.

As the conversation laxed one of the fellows produced a bottle of something which smelled vilely like furniture polish from his pocket and turning to the boys (perdon me, I mean men) he said, "Have a drink."

But the answer was, "No, thanks."

He seemed rather surprised and, turning to his companion, he said, "Say Bill, these boys aren't from Rose Poly."

"You have a fine signature," said a salesman to a buyer who had written his name with many flourishes.

"Yes," answered the buyer proudly. "I should have. One of my forefathers signed the Declaration of Independence."

"So?" said Abie. "Vell you ain't got noddings on me. Vun of my forefathers signed the Ten Commandments."

Drunk, grovelling on the sidewalk: "I'll climb this wall if it takes all night."

Ed and Alex were hotly discussing the merits of a book. Finally Alex said, "No, Ed, you can't appreciate it. You never wrote a book yourself."

"No," retorted Ed, "and I never laid an egg but I'm a better judge of an omelet than any hen in the state."

Voice from 11th floor: "S'matter down there, have you no key?"

Noisy one below: "Sure, gotta key all right, but wouldja jussa-son thrown down a few key holes?"

FOR THE GOOD OF THE MAJORITY

It has been brought to our attention that Mr. Moench was the recipient of a quantity of straws presented to him with the best wishes of one of his classes. Being unable to see how Mr. Moench can use them to advantage, we suggest that he pass them on to his Junior non-electricals so they can pass E. E. E. this semester.

John: "Dearest, I must marry you."

Kate: "But have you seen my father?"

John: "Yes, many times, but I love you just the same."

Boss: "Are you doing anything Sunday evening, Miss Vale?"

The Bosses Stenog (hopefully): "No, not a thing."

Boss: "Then try to be at the office earlier on Monday morning, will you?"

Eddie: "Do you know how to keep fish from smelling?"

Kantor: "No, how do you do it, Eddie?"

Eddie: "Cut off their noses."

—(heh-heh-heh!)

"Sir! I believe you are trying to kiss me!"

"Well, now that you understand suppose that we quit assaulting each other and cooperate a little."

—*Pennsylvania Triangle.*

Boss pointing to cigarette stub on floor: "Smith, is this yours?"

Smith: "Not at all, sir. You saw it first."

1st Coed: "Mary has a big Hispano."

2nd same: "Yes and she will wear those tight dresses."

—*California Engineer.*

IN THE DORMITORY

Blair: "You must like a lot of butter."

McCord: "I sure do or I'd never eat so much toast to get so little."

Judge: "Guilty or not guilty?"

Rastus: "Not guilty, suh."

Judge: "Have you ever been in jail?"

Rastus: "No suh, I never stole nuthin' before."

Sonny: "Mamma, Papa wouldn't murder anybody would he?"

Mama: "Why certainly not, child, why do you ask?"

Sonny: "Well, I just heard him down in the cellar saying, 'Let's kill the other two, George.'"

A smart young man, Midshipman Brown,

He had 'em beat for miles around. It wasn't work for him, but play; He never worried anyway.

He aimed his piece and let her go;

A perfect shot behind the bow.

The captain took him off his feet With, "that's the flagship of our fleet."

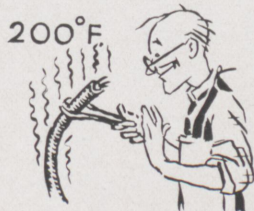
"Say bo, has you seen ma new gal yet?"

"Yeah, she's a bird ain't she?"

"What makes you say that. Did you hear her chirping?"

"No, I was just thinking of the worm she picked up."

G-E *Campus News*



CABLE-GRAM

It's not easy to tell you how, for many years, G-E chemists have been fiddling around with Glyptal (a synthetic resin of the alkyd type, made from phthalic anhydride and glycerine as base materials); or how, in studying high-molecular-weight organic compounds, they found that the flexibility of Glyptal could be varied by changing the length of the chains of the polyesters—ho, hum! But you may be interested in knowing that Glyptal compounds make excellent printing rolls, tooth-brush handles, gaskets, ash trays, automobile finishes, and—what not.

These chemists not long ago turned out Glyptal-cloth insulation for cable. Soak it in oil; it won't care. Heat it to 200 degrees F., if you wish. Its resiliency is remarkable; its tenacity, terrific; its durability—it makes other insulations seem like wrapping paper.



"X-RAY AS YOU GO"

It's just the thing for customs inspectors, veterinarians, baggage men, and detectives—this new portable x-ray announced not long ago by J. H. Clough, U. of Rochester, '16, new president of the G.E. X-Ray Corporation.

The set can be toted around easily, and operates, safely, from an ordinary light socket. It will make x-rays of the human body, industrial fluoroscopic examinations, and radiographs of locked trunks, suspicious packages, and the like. It is particularly

adapted to making x-rays of animals and for use in cases where the machine must be moved to the patient. A layman can operate it easily and with safety.

It brings the x-ray within practicable reach of the veterinarian. The first set built was rushed from exhibition at Chicago to Belmont Park, and there used to inspect the right forefoot of one of the best-loved horses of the modern turf, which was on the point of being prematurely retired for a puzzling lameness. So simple and quiet was the operation of the x-ray that the horse was not in the least nervous. "Well, well, boys," neighed Equipoise, "I'm sure glad you came along."



99.9909% PERFECT

Soap that's "99.44 per cent pure" may be pretty good, for soap; but in the matter of reliable control of street lights—well, lend your ears.

Carrier current controls the street lighting in one district of Springfield, Mass. In the last year there have been but 32 failures (from all causes, lightning included) in 350,928 controller operations. That's within .0091 per cent of perfection.


Carrier current makes use of wires and transformers already installed, avoiding duplication and congestion of circuits. In Springfield, a 700-cycle current, transmitted for eight seconds, operates 481 controllers, turns on 675 lights. Used 30 seconds, it turns them off. A second frequency of 460 cycles is available to control off-peak water heaters and other devices. This is the only G-E installation of its kind—a temporary distinction, we hope.

C. E. Jennings, Ohio State, '12; F. M. Rives, U. of Texas, '23; and J. L. Woodworth, U. of Idaho, '24, were responsible for this job.



96-27DH

GENERAL ELECTRIC



*Chesterfield —
I enjoy them a lot*

*...to me they're Milder
...to me they TASTE BETTER*

They Satisfy