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“There is a Reason”

ED SPARKS
Tailor and Haberdasher 715 Wabash Ave.

“YOU’RE NEXT!”

AT

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Barber Shop
St. Nicholas Hotel, North Ninth St.
A FULL LINE OF SHAVING ACCESSORIES
YOU’LL GET THE SERVICE

COME TO HAVENER’S EVERY WEDNESDAY, FRIDAY AND SUNDAY FOR

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Short Orders Bakery and Lunch Room
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Remington Junior Typewriter

It is swift and easy running, does beautiful work, and is so simple in construction that its skilled operation is quickly learned by anybody — no lessons needed.

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Telephone, Both Phones 2862

LOOK UP that list of Technic Advertisers before you go down town. It will benefit the three of us:

The Advertiser
The Technic
and You

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PLEASE NOTE THAT THE OFFICES OF THE UNDERSIGNED HAVE BEEN REMOVED TO

Suite 908, Hume-Mansur Building
23 E. Ohio St. :: Indianapolis, Ind.

ARTHUR M. HOOD HOOD & SCHLEY

FREITAG, WEINHARDT & CO.
664 Wabash Avenue
Phones 140

ALWAYS TRADE WITH OUR ADVERTISERS. MENTION THE TECHNIC—IT WILL HELP US.
TERRE HAUTE DIAMOND PALACE
THE
Swope-Neih-Bloomer
Jewelry Company
Established 1867

HEADQUARTERS FOR
CLASS PINS, SEALS, FOBS,
WATCH BRACELETS,
ELECTRIC CIGAR LIGHTERS,
SOUVENIR SPOONS,
PRIZE TROPHY CUPS,
FOOTBALL SPOONS
Watch and Jewelry Repairing Neatly Done and Fully Guaranteed

Arthur Neih '14, now connected with the firm as a stockholder, will be pleased to meet his Rose friends.

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TERRE HAUTE

Who's
Bud Stewart
?

Spaulding or Wright & Ditson
Tennis or Foot Ball Goods
IN STOCK
KODAK SUPPLIES
Morse's or Lowney's Chocolates
BLACK & COOK, DRUGGISTS
We Deliver Ninth and Chestnut Streets

Martin's Photo Shop
Over Crescent Theatre

Headquarters for
Portraits,
Athletic Photos,
Blue Prints and Slides

Both Phones
SEVENTH AND WABASH

$12.00 MACKINAW $11.00

ALWAYS TRADE WITH OUR ADVERTISERS. MENTION THE TECHNIC—IT WILL HELP US.
A Hand Tailored Suit in Five Minutes

Why Wait for a Tailor? Society Brand Clothes

THE IDEAL CLOTHES FOR THE COLLEGE FELLOW

Manhattan Shirts Mallory Hats Interwoven Hose Wilson Underwear

You Can't Buy Poor Goods Where There Are No Poor Goods To Sell

M. JOSEPH'S SONS

512-514 WABASH AVENUE

The ORPHEUM

"The House of Music, Laughter and Song"

OUR PROGRAM

We are now showing on our regular daily program the output of The General Film Company, consisting of the following popular makes: Vitagraph, Essanay, Lubin, Selig, Kalem, Edison and Biograph, and featuring such stars as Charles Chaplin, Henry B. Walthall, Richard C. Travers, Earl Williams, Viola Dana, Edith Storey, Anita Stewart, Leah Baird, Lillian Walker and others.

OTHER FEATURES

Our Pipe Organ—Percy G. Robbins, Organist.
The Orpheum FOUR—Walter C. Dorney, Contra Tenor; Frank J. Holland, Tenor; Walter J. Schwartz, Baritone; Geo. L. Pettier, Basso.
Our Orchestra—George Hoback, Director; LaVern Stahl, Violinist; Jos. Mayes, Violinist; Jack O'Grady, Drums, Xylophones, Traps, etc.

ALWAYS FIVE CENTS

L. D. SMITH

NEWSDEALER and STATIONER

A Full and Complete Line of
Basketball and Football Supplies
ALWAYS IN STOCK

673 Wabash Avenue Terre Haute, Indiana
CITIZENS TELEPHONE 6

Max Frank

"THE SOLE SAVER"

Rose Dispensary Bldg., Corner Seventh and Cherry

The Only Goodyear Welt Shoe Repairing System in the City

Shoes Called For and Delivered Promptly

BOTH PHONES 1995

COLUMBIAN

SOFT WATER LAUNDRY

SEE BINHACK, '17 Both Phones 329

ALWAYS TRADE WITH OUR ADVERTISERS. MENTION THE TECHNIC—IT WILL HELP US.
ON the square, have you ever stopped to consider what a great deal of harm knocking does? Of course, you have read a great deal about how the world hates a knocker, you have been told that no one loves a crab, and you have seen a good many little couplets eulogizing the Cheerful Grin, but do you believe it all?

Well, some folks do. And what is more, they say that any school or college may be greatly handicapped and hindered by even a few men of the knocker brand, especially if the school is a small one. Ponder over it a bit. Perhaps you may agree with them.

We must be frank in admitting that we, at Rose, have the criticism habit pretty well developed. Is it doing us a great deal of good? No! Is it doing us a great deal of harm? It must be admitted that it does not promote a feeling of good fellowship; it really promotes bad feeling, and there is your poor spirit.

Let's try to break up this eternal knocking. It should not be impossible. Think of the results! Can you imagine going through a year at Rose when even in the hardest winter months there would be absolutely no knocking and none of the hard feeling that goes with it? Looking back, anyone who observed will positively state that, had last year's football team gone through the season entirely free from internal friction, there was one game we could not have helped winning, and there were probably more. That is just one little part of it all; think how much more pleasant it would be to consider every man your friend because he is a Rose man, if for no other reason, than to consider it your sacred duty to register a knock about every third man you pass; think how much more efficiently our organizations could be managed. Do you think it worth while?

You may say that a condition of perfect harmony is impossible in any school, and that a man must have dislikes no matter where he goes. That is true, but if he doesn't continually
air his opinions he is apt to forget them after a time.

Rose is a small school, and may therefore more easily approach the ideal than a larger institution. We know each other more intimately; we should be better organized. Are we?

Perhaps one of the first reasons that we are just a little lacking in initiative in all departments is that those who would go ahead, do the work, and assume leadership often hesitate to start when they think of the Anvil Chorus that is sure to follow.

We can never accomplish real good work—that is, in things outside of the curriculum—until we are a single unit, but we can never be brought together until each man is willing to do his part in forgetting personal grudges and overlooking personal faults.

Let us forget and overlook, and wait for results—for one year at least.

Each year at this time it is customary to insert a paragraph in the editorial columns of the Technic, appealing to the students to support those business men who favor us with their advertisements. The Y. M. C. A. handbook also contains a few words in regard to this matter. The big trouble, however, is that you are so accustomed to reading the same little paragraphs each year that you forget about the whole matter five minutes after you have finished reading it.

Let it here be stated that this article is not customary; it is necessary! Now is the time for us to wake up! Let us look the facts squarely in the face. We are a school of two hundred students in a city of sixty-five thousand; how much of an impression do you suppose we will make unless every man is willing to go a few blocks out of his way to show that he appreciates an advertiser? If we had three thousand men at Rose, “we’d have ’em where we want ’em” without any effort; with two hundred men we must simply “put ’em where we want ’em” by a good deal of effort.

Here is a fact: Every year the Technic fund, along with the athletic fund, is overdrawn, and the general fund is obliged to furnish the deficit. There is no excuse. We should make money; with a few more advertisers we would make money. Now, you are the man who makes the advertisers, and you are the man who should make the Technic a money maker.

Looking at it from another point of view, do you want a few advertisers to look upon an advertisement in the Technic as charity? It isn’t, you say? Why, of course it isn’t, but confidentially, there are really a few who do regard it in that light. Of course, they are mistaken, but we have to show them their mistake.

On page 27 of this issue, there is a classified list of the merchants and business men who are our present advertisers. Tear out this list, stick it up some place about your room, and, when you are prosperous and ready to cash in your monthly check, consult it! From time to time the Technic will publish revised lists including the names of merchants who have become advertisers. Then, when you do your purchasing, don’t be afraid to tell the dealer why he is favored by your patronage. Make it a point to impress upon him the fact that you are a Rose student and that you are favoring him because he is an advertiser.

Another thing—in class affairs and in affairs conducted by the various school organizations, the officers should assume the duty of seeing that our advertisers are patronized exclusively by these organizations.

Rose students spend over $50,000.00 in Terre Haute each year. The merchants must be made to realize this. You can make them realize it if you try—all you have to do is make the attempt.

At the time that this issue of the Technic is going to print, resolutions in regard to this matter are being circulated by the Student Council. You see that your signature is below them, and then don’t forget all about the matter after you have placed your name there. Our case is, in a way, similar to that of those old patriots of the revolution—we must hang together. Remember that!
THE new system of rushing agreed upon by last year’s Inter-fraternity Council is now on trial. Apparently, it has many advantages over the old method. It is a certainty that the long rushing season is gone, never to return, and those upper classmen who passed through the feverish rushing season of last year cannot but help feeling that a big load has been lifted from their shoulders. It is hardly possible that a better method will be devised, and it is most probable that, with perhaps a few minor changes, the present arrangements will serve for many years. It is the opinion of some that this new system requires too great a degree of integrity on the part of the fraternity men to be practical. This seems a trifle far fetched, but the results of time will prove which view is correct.

It will be interesting to note if the Freshmen “death rate” will be in any way affected by the new ruling.

It is rumored that Superintendent of Shops Ranells, is planning an inspection trip for the Juniors this year. Whether the plans will crystallize into any definite action remains to be seen, but every Junior is hoping to be able to be included in the party when the trip is made. Undoubtedly, a trip of this kind would be a real benefit, for, not only considering the information acquired, it would be a welcome break in the steady work, and should really promote a deeper interest in the work at the Institute.

Almost every Tech school in the country includes both Junior and Senior inspection trips as a part of the regular work. Why not Rose? Indianapolis is not far, and there are a large number of factories there which could be visited to advantage. Two or three days spent in this matter would be far from wasted. The Juniors, however, can only wait results after stating unanimously that they want that trip.

IT is with pleasure that we publish Mr. H. B. Pulsifer’s discussion of the metallurgical plants in and about Chicago. The subject, although of general interest, should be more than interesting to those students electing the course in Chemical Engineering. To some of the seniors in that course this article may be a light in the dark; may aid in a solution of the problem of “What shall I do next year?”

Mr. Pulsifer holds the position of Assistant Professor of Metallurgy at the Armour Institute of Technology. He is also an authority on matters pertaining to the practical side of mining and metallurgy, having done a great deal of expert work both in the Joplin zinc district and the Wisconsin copper fields. We congratulate ourselves upon being able to print an article by a man who is so thoroughly able to combine the practical and the theoretical.

THE alumni article this month is written by Lucien N. Sullivan, ’86, who is at present the American Consul at Newcastle, New South Wales. Since leaving school, Mr. Sullivan has been fortunate in seeing a great deal of the world. He was engaged in engineering work in many different parts of the United States for the first few years after his graduation, finally entering the service of the government when he accepted a position with the American War College, at Washington, D. C. He left this position when he was sent to La Paz, Mexico, in the Consular Service, and remained there until he received his present appointment to New South Wales. His article deals with the pearl fisheries near La Paz.

TWO alumni have returned to Rose this year to take post-graduate work. They are D. P. Savant, ’12, and R. E. Lawrence, ’13. Both men are taking advanced work in Electrical Engineering, and are also serving in the capacity of instructors. Mr. Savant is assisting in Engineering Laboratory, and Mr. Lawrence is acting as instructor in the Freshman Trigonometry and Junior Electrical Laboratory. Mr. Savant was formerly connected with the Duncan Electric Mfg. Co. of Lafayette. Mr. Law-
rence was with the General Electric Co. at Lynn, Mass.

We unite in wishing them success, and in hoping that the coming year with us will prove pleasant, as well as profitable to them.

It is with regret that we are compelled to announce the resignation of two members of the staff. George W. Brooks, '16, editor of reviews, was unable to return to school this year on account of an attack of appendicitis, and Sydney C. Leibing, '16, alumni editor, due to the pressure of outside work, was also forced to give up his position. Both men have done good work for the Technic in the past, and deserve praise for the way in which they have handled their departments. Ralph A. Stuart, '16, has been selected to fill the vacancy left by the resignation of Brooks. From the energy he has displayed along other lines, we feel that his department will be something as good, if not better, than the Technic has ever yet known.

As Leibing's resignation will not go into effect until Nov. 1, a successor has not yet been elected.

Effect of War on Berlin Railways.

The effect of the European war was not felt on the Berlin surface railways until the autumn of 1914, but the annual report of the Grosse Berliner Strassenbahn for the last year shows that losses in traffic on account of the war and of additional rapid transit and bus competition led to a reduction in dividends from 8 per cent in 1913 to 6 per cent in 1914. During the mobilization there was a feverish increase in travel, but in August the loss as compared with 1913 was 13 per cent, and by December it had increased to 15 per cent. The mobilization of 50 per cent of the operating staff made it necessary to reduce service 25 per cent until the 5000 employees could be replaced. Service on certain parallel lines was reduced or eliminated, while on the active lines trailers were increased, headways were lengthened and schedule speed was raised.

During the first seven months of the year 12,735 people were employed, but during the last five war months the number fell to 9546.

At first the number of applicants for employment to fill the places vacated by the enlisted men was so large that the company thought there would be no difficulty in getting new men. This expectation was not fulfilled, however, because most of the unemployed were engaged by manufacturers of war material. Although about 600 female members of employees' families were trained for service as conductors, the difficulties were great because most of the instructors had been mobilized. On account of the increase in prices of foodstuffs and other necessities, the company raised wages pending settlement of the war. In the case of employees at the front who left dependents it is paying each wife $6.25 a month, with an additional $1.25 for every child less than 15 years of age. A donation of 3 3/4 cents daily is made for what is termed "milk money." Women conductors with children also receive the $1.25 and 3 3/4 cents allowances. The positions of all men called to the front are being kept open for them.—Electrical World.
Metallurgical Plants
(CHICAGO DISTRICT)
By H. B. PULSIFER

SOME time ago one of our contemporary technical journals presented New York City as the greatest metallurgical center of America; some twenty plants, including one discarded and one proposed were listed to substantiate the assertion. A little later the same paper offered a diagram of Chicago to show the importance of this center as made illustrious by its metallurgical plants. Curiously to relate, paint companies, a by-product coke plant, an oil company, a cement company, a couple of warehouses and a discarded plant were included in the list of twenty-four plants of metallurgical importance.

It is our opinion that the plants about New York have never been completely and adequately enumerated, much less described.

As for Chicago, this sketch is offered provisionally for it is surely faulty and possibly incomplete. The author is somewhat familiar with most of the plants listed, some of them he has never seen; there may be others equally deserving of mention. The plants are continually changing; new methods are coming every short while. Plants are being discarded, others are quickly erected. The business offices of Chicago are fairly alive with metallurgical discussion; much of it pertains to the mines and plants spreading far and away to around the globe, a good deal of it always relates to the local field.

Another premise to be noted right here is that we are to mention plants only as they house some distinctively and notably metallurgical feature. This is considerably restricted from including all the plants of prominent chemical technology which the Chicago district includes. The Semet-Solvay Coke Co., the Universal Portland Cement Co., the Standard Oil Refinery, the Victor Chemical Works, the huge paint factories, the varnish works, the distilleries, the manufacturing jewelers, the Corn Products Co., the fifty brass and seventy-five iron foundries and innumerable other industries with a basis of or pertaining to chemical technology are to be excluded from this list which may comprise plants of distinctive metallurgical function. A test for eligibility may well be that not only must the plant or department of a plant be operating on ores or metals but that the operations must be under rigid chemical control. This cuts out the rule of thumb foundries but admits the plants making steel castings by converter. It cuts out a cement plant but includes a chemical plant making sulphuric acid from the roasting of zinc ores.

New York is admittedly the world's center for the electrolytic refining of copper. This is a huge industry and one of immense monetary value; the plants, however, employ few men and the tonnage is ordinary. One is amazed at the intricate chemical processes in any one of the copper refineries. We believe New York is best designated as a center for refining precious metals. Not only are the copper plants largely gold and silver refineries but they all produce platinum and palladium and some three plants close in are straight platinum refineries. The largest silver refinery of the world is indeed within the fence of one of those copper and lead refineries.

But the metallurgical industries about such cities as Birmingham, Buffalo, Pittsburgh or Youngstown can boast importance by men employed or tonnage or the production of value to far outstrip New York. Any one of a dozen steel plants throughout the country employs...
more than the entire number of men in the combined metallurgical industry about New York; any one of the four great plants about Salt Lake City treats a greater daily tonnage than all the works about New York.

What, now, can we say of the importance of the Chicago district.

The Chicago district is exceeded only by the Pittsburgh district in the production of iron and steel. This, alone, at once makes the section of prime importance. Secondly, the Chicago district is an extremely important lead refining center; at the end of 1914 one of the three large lead refineries was dismantled, this has decreased our importance. Yet we have left the great electrolytic refinery of the United States Company and the new and finest Parkes’ process plant of the world; that of the Anaconda Company. The crucible steel plant at Chicago Heights has won deserved recognition for its scientific management and high grade product. In the manufacture of iron and steel castings as exemplified by the malleable iron companies, the Manganese Steel Co., the steel foundries and in particular the Crane Co. foundries we have a phase of the iron and steel industry of very high technical and metallurgical development. One plant makes a specialty of refining gold, silver, platinum and palladium. We have zinc roasters, a detinning plant, copper reverberatories and blast furnaces.

Chicago district, then, is not only of huge importance in tonnage, men employed and value produced, but of an unusually wide range in the scope of its operations. For various features the plants about Chicago attract world attention; this is made evident in the brief descriptions of some of the plants which will now be given:

1. THE SOUTH WORKS OF THE ILLINOIS STEEL COMPANY.

This plant, facetiously called the University of South Chicago, is one of the great steel plants of the world. Its equipment is of the most varied types, its products of every quality, its routine and experimental operations of much comprehension and it is operated by the most capable men from all nations. With all its varied departments the plant has long been famous as one of the lowest-cost-of-production units of the Steel Corporation.

The plant covers some 400 acres, at capacity employs 10,000 men. It has 11 large blast furnaces in two batteries, each with its own slip, unloading equipment and stock piles. There are 24 basic open-hearth furnaces and acid open-hearths as well; there are 3 Bessemer converters and one 20-ton Heroult electric furnace. A Gayley dry-blast equipment is available for certain of the blast furnaces, although seldom used. The plant has rail, slab, plate, blooming and structural mills. The blast furnaces have exceptionally competent operators and produce iron or the iron alloys at will. The Bessemer are always ready for low cost production while with the open-hearths and electric furnaces the very highest grades of straight carbon or alloy steels are produced in any desired tonnage. In the matter of steam and gas blowing engines the plant offers quite a museum for the mechanical engineer.

Possibly the most remarkable record of the plant is in the training of men to go out as managers and superintendents of other plants. Promotion is rapid, the pace terrific and only young and capable men with great energy withstand the demands.

Fig. 1 is a glimpse into this labyrinth of ore cars and brick and steel from a blast furnace top of the Iroquois plant, directly across the Calumet.

2. THE GARY PLANT OF THE INDIANA STEEL COMPANY.

This plant is also one of the world’s greatest steel plants. It is one of the newest, most standardized and heavy duty producers of the Corporation. The full site covers several thousand acres with a water frontage of 1½ miles. The Grand Calumet river has been reconstructed and provided with great docks and an immense turning basin. There are 8 of the
largest blast furnaces now built; 42 basic open hearth furnaces make the steel. Gas engines to the number of 23 can produce a million horse power daily. Rail, billet, plate, axle and merchant mills shape the product. The by-product coke plant, Koppers type, is the largest in the world; besides the standard recoveries of coke, gas, tar and ammonium sulphate provision is now under way for recovery of the more valuable liquid hydrocarbons.

Gary plant is at the extreme southeastern corner of the Chicago industrial district, 26 miles out. From an utterly barren waste in 1906 the place has been transformed to this staggering plant and its attendant city of some 30,000 population. The plant is built for tonnage and standardized operation.

3. JOLIET PLANT OF THE ILLINOIS STEEL COMPANY.

Four blast furnaces supply the 3 Bessemer converters which make the steel for billet, rod and wire mills. A by-product coke plant of 280 ovens supplies the blast furnaces and produces standard ammonium sulphate.

This plant is in the extreme southwestern corner of the industrial district.

4. WISCONSIN STEEL COMPANY.

This South Chicago plant is now prominently before the metallurgists of the world because of its newly established records for coke consumption in the blast furnaces. One thousand six hundred and twenty-four pounds coke per pound iron was the furnace record during the month of March of this year; the furnace also made 18,340 tons of iron during the month. Figure 2 shows a faint speck at the top of the blast furnace in the center; this is the big broom flying to proclaim the world's record on coke consumption.

The plant has three blast furnaces with two Bessemer converters for making the iron into steel. Suitable mills provide for turning the steel into company and commercial products. Features of particular interest are the ten-foot cupola, seen at the very right in Figure 2, and the small Greenawalt sintering pan for treating

flue dust which is located far to the left of the stock pile seen in the print. The plant has established a splendid safety record and is understood to have an extremely low casualty rate at the present time. The company ore boat, "The Harvester," is one of the fastest on the lakes. The plant is continually changing and improving so that every few months one finds a wealth of new detail worth studying.

5. INLAND STEEL COMPANY.

At Indiana Harbor is one of the busiest and most enterprising small steel plants of the world. Industrial depression has slight effect on its activity, its furnaces are seemingly ever in blast, and its mills and machines turning out endless quantities of steel products.

The plant has two large modern blast furnaces; twelve 60-ton open hearth furnaces and 86 coke ovens as the main features. Turbines, driven by the exhaust from the huge blooming mill engine, supply power for several of the mills. A new benzol recovery plant is nearing completion. A comparatively new 90-inch sheared plate mill is an interesting unit. Waste heat boilers are now being tried on the open-hearths. An hour with Supt. Campbell in the mills, DeHall in the coke plant, or Chemist Dixon on the open-hearths, is always a rich treat. Figure 3 indicates the usual activity in progress about the open-hearths.

6. IROquoIS IRON WORKS.

This merchant iron plant at South Chicago has two large modern stacks and one good stack in reserve at the adjoining old site of the plant. The pumps, compressor and generators at the furnaces are entirely turbine driven. In several respects this is a model plant. One seldom finds a plant as clean and tidy and above criticism in every respect. From the top of one of these Figure 4 furnaces our Figure 1 was taken, showing the hundreds of smoking acres in the South Works.

7. FEDERAL FURNACE COMPANY.

Across the river from Wisconsin Steel at South Chicago the two small Federal furnaces
2. Wisconsin Steel.
3. Open Hearth Department of Inland Steel.
5. Federal Furnaces.
7. Columbia Tool Steel Co.
THE ROSE
wll usually be found in blast. It is rather a
small, two-furnace merchant iron plant. Many
of the details are interesting, but the plant pos-
sesses no unusual features.

8. THE RAILWAY STEEL SPRING COMPANY.

At Chicago Heights this highly interesting
plant is situated beyond the residences some
distance from the factory side of the town.
Three elegant open-hearth furnaces are housed
in a huge steel building, while in the mill build-
ings one finds a 5,000-ton hydraulic press, tire
mills and an enormous machine shop fitted with
some 80 large mills. In another building one
finds the manufacture of all sorts of railroad
stock springs going on.

This is the only plant in the section practic-
ing bottom casting of their ingots. Various
other uncommon and valuable features are to be
found. The appointments of the furnaces are
novel, while numerous interesting details clus-
ter about the sectionalizing of the ingots and
the pressing and rolling of them out into the
 crude tires.

9. INLAND WORKS, REPUBLIC IRON AND STEEL
Co.

At East Chicago this hustling plant has more
 than a score of furnaces at work, making pudd-
dled and busheled and fagoteted iron. One can
here see the old wet puddling process, making
genuine wrought iron, or the making of a re-
lated material by welding steel and iron scrap.
Here are the “squeezers” and the startling pyro-
technics when the gas-exuding bars pass the
rolls. This is the only plant of the sort in the
region; it adds wonderfully to the metallur-
gical variety of industries. Figure 6 shows the
appearance of the works on a frosty morning.

10. COLUMBIA TOOL STEEL COMPANY.

At Chicago Heights is this interesting and
up-to-date exponent of the crucible steel indus-
try. President Clarage holds with a firm hand
the technical attainment as well as the operat-
ing and selling sides of his business. Producer
gas fires the two crucible furnaces. Small roll-
ing mills and several hammers insure the me-
chanical part of making a great range of
straight carbon and alloy crucible steel. Not
only has the plant far outstripped any other
plant in the world for long life of the furnaces,
but the product is receiving wide recognition
for its high grade. It is the only plant of the
sort in this part of the country. Figure 7 is a
general view of the exterior; as indicated, the
size of the main building has recently been
doubled.

11. NATIONAL MALLEABLE CASTINGS Co.

The works of this company are only slightly
known to the author. At 26th and Rockwell
is a large plant for making malleable iron by
melting the pig in air furnaces and annealing
the chilled castings in the usual large ovens. At
the Melrose Park works open-hearth furnaces
are used to melt the scrap for steel castings.

12. ILLINOIS MALLEABLE IRON COMPANY.

Like the preceding, this company has a mul-
tiplicity of plants and extensive metallurgical
operations always under way. Seven reverber-
atory furnaces, capacity 14 to 20 tons, are sup-
plemented by cupolas and the necessary ovens
for annealing the chilled castings. This plant
is growing rapidly like so many of the other
metallurgical plants in the district. The plants
are all in the immediate vicinity of Diversy
Parkway and Paulina street. Figure 8 shows
a partial view of the numerous buildings.

13. CRANE COMPANY.

In the foundry work of this company one
finds such an excellence of attainment that it
would have to be regarded as a metallurgical
plant aside from the presence of the converters.
The staff has come before the public for its re-
search work and the new plant at Clearing is
stated to be a truly remarkable affair. Here is
to be embodied the ultimate in design and
equipment that the most lavish expenditure can
provide. This promises to be one of the show
places for the most advanced technique.

At Chicago Heights manganese steel castings are made by cupola, converter and reheating furnace. The two cupolas were 60 inches; there are four 3-ton Tropenas converters, two to each cupola. Adequate provision is made for the water toughening while elaborate shops provide grinding machines to shape the unmachinably hard castings. Castings remarkable in size and quality are every day made in the plant.

15. The Link-Belt Company.

At 39th street and Stewart avenue is this large plant for iron and steel castings. A 36-inch cupola supplies the 2-ton Zenze converter. Annealing ovens and pits complete the metallurgical part, although much space and equipment is devoted to cleaning, machining and assembling the multitudinous products put on the market.


This branch of the Anaconda Copper Company does lead refining at the plant seen in Figure 10. It is one of the largest and most recent lead refineries in the world. Present capacity is 5,000 tons per month, but the plant is susceptible of much enlargement if required. The usual Parkes' process is used, although Supt. George Hulst has two large Pattisonizing kettles ready if bismuth is unduly high.

The plant is well designed and embodies many of the recent handling devices as used in the metallurgy of lead. A very fine bag house is provided; the usual complement of reverberatory, blast, retorting, and cupellation furnaces are used. Excellent records from every point of view are being maintained.

17. United States Metals Refining Company.

At East Chicago is this, the largest electrolytic lead refinery in the world. The equipment consists of electrolyzing tanks, kettles and slime treatment outfit in the main building; one building holds the blast furnace, another the silver refinery and a fluosilicate retorts in still another structure. The plant teems with chemical, metallurgical and engineering niceties. From power house to bag house everything is in the highest sense technical; it is load factor, current density and fused solution distribution everywhere.

Raw lead bullion from the two company plants in the West is treated, producing electrolytic lead, electrolytic bismuth, hard lead, while dore silver and copper matte goes to Chrome, New Jersey, for further refining.

The company has certainly attained success in various ways; the supplying of power for the continuous and uniform load; the making of highest grade lead and bismuth, and the handling of the innumerable troubles resulting from the impurities in and complexity of the raw lead bullion from western mines.


What was formerly a notable plant for the refining of lead was dismantled and cleaned up during the early months of 1915. Refining had been discontinued the latter part of 1914, but several months were spent in working out everything smelterable on hand, and finally digging out every scrap of metal that could be found far under floor or foundation. As usual, an unexpectedly large amount of metal was found under the furnaces.

Operation of a portion of the plant is now continued by former employees for the recovery of zinc oxide from the old slag dump. From 60 to 100 tons of the slag are resmelted each day; the charge is made of this slag, limestone and coke, and the furnace run with a very hot top. Zinc vapors arise in great quantities and burn with characteristic green flames in the already densely white fumes arising from the charge. The zinc oxide is cooled in passing through flues, and finally collected in bags and marketed.

This is one of the most significant metallurgical operations to be found in the United States at this moment. If this success is copied and
improved upon at other plants it will mean the recovery of hundreds of thousands of tons of zinc and a distinctly new phase in the metalurgy of lead and zinc.

Too much praise cannot be bestowed upon Hedges and Divine, the men who put their money into the enterprise, and are making a success of the venture. We are informed that high officials of the American Smelting & Refining Co., in particular those interested in the research department, are making pilgrimages to their former plant.


At 58th street and Throop, well within the city, one finds a plant fully equipped for roasting and smelting ores, desilverizing and recovering and purifying the precious metals, gold, silver, platinum and palladium. The plant is really a refinery for the latter metals, making use of lead to collect them from ores or waste. The plant has a 30x150 continuous sintering machine, a 30-ton lead blast furnace, several reverberatories, desilverizing kettles and a bag house. Retorts, cupels, parting kettles and the necessary outfit for wet refining of the precious metals is on hand.

20. Great Western Smelting & Refining Company.

At 42nd and Wallace is a well equipped plant for the recovery of secondary copper and common alloys. There is a blast furnace, five 20-ton reverberatories, a score of melting pots, briquetting machine with the numerous facilities for making old metal into standard alloys. This plant does a business running into the millions of dollars each year. The copper reverberatories are very tidy furnaces.

21. Chicago Bearing Metal Company.

At 43rd and Western is this large plant for recovering metal and making car journal bearings. Besides the full and up-to-date foundry equipment for casting and machining and babbitting the stock there are many brass melting pots of different designs and a copper blast furnace. A grinding pan, jig and table is also installed to treat waste materials. This is a new plant, of large capacity and with many automatic appliances.


One of the largest white lead works of this company is at 900 West 18th street. The old Dutch process is used. Oxides are also made and the company does a considerable business in secondary metal. For this metal business and the production of solders, babbitts and other alloys reverberatories and pots are of course used. A pipe press enables the plant to make various sizes of this commodity.


This company makes white lead exclusively at its growing plant in West Pullman. The Carter process consists in atomizing molten lead, then corroding with water and acetic acid in large cylinders. After the metal has accomplished its change to the hydrated carbonate the material is exhaustively ground, elutriated, dried and reground in oil. This plant is possibly almost over the border into straight industrial chemical industry classification; yet, the processes and equipment in the plant has a distinctively metallurgical origin, aspect and use. The numerous other and large paint works in the district we leave to the chemists.


This plant of trim and technical aspect is in the main metallurgical row at East Chicago; for all the world it resembles the chemical plants so common in Germany. It also highly partakes of the official restraint so common in that paternal fatherland. It is the only real metallurgical plant in the Chicago district not offering student and professor the courtesy of inspection. The person in local charge is conspicuously merely the agent of New York or, better, Berlin capitalists. The plant treats new scrap tin-plate; report says both the tin and
8. Part of Illinois Malleable Iron Co's Plant.


11. United States Metals Refining Co.


10. International Lead Refining Co.

12. A Lead Blast Furnace Making Zinc Oxide, South Chicago, September, 1915.

iron are turned out in ingot form, each ready
for consumption as new metal.

25. Grasselli Chemical Company.
This is a very large industrial chemical plant
whose main products are acids, insecticides,
glauber salt and sodium silicate (water glass).
As by-product, roasted zinc ore is forwarded to
the eastern zinc smeltery of the company.
As metallurgical feature the plant has two
standard Hegeler zinc roasting furnaces, each
capable of roasting 45 tons of ore per 24 hours.
The roaster gases supply in part the sulphuric
acid plant. Figure 13 indicated the great size
and many contrasts of the plant.

26. General Chemical Company.
Of the several plants of this great chemical
company the one located at Hegewisch roasts
zinc ores as one of the sources of sulphur dioxide
for making sulphuric acid. Other than this the
plant is mainly for the production of heavy
chemicals.

27. Otis Elevator Company.
This concern is reported to have one of the
largest steel converter outfits of the section.

28. American Steel Foundries Company.
The author is not familiar with the activities
of this company.

29. Interstate Iron & Steel Company.
This company is provisionally included.

30. Thomas J. Dee & Co.
This concern is reported to be equipped for
the refining of precious metals.

From the foregoing comes the one summary
that Chicago district possesses an astounding
variety of metallurgical plants, both in size and
scope. One familiar with the district has
ground for the claim that Chicago is the metal-
lurgical city of the world! The great metrop-
olis, New York, offers a meager display com-
pared with what Chicago affords.

Inspection of a local transportation map af-
foards a reason for the presence of so many
plants in the vicinity.

The massing of people on a level stretch in
the very heart of the country, accentuated by
the rivers and lake facilities, demands indus-
trial development. Directly between coal and
ore, directly between western mines and east-
ern consumers; with every facility of boat and
railroad, a great labor market, wonderfully
cheap coal, all have conspired to build the in-
dustries to great proportions.

The plants mass themselves in groups about
the points of most favorable transportation fa-
cilities. One group is on the river at South
Chicago, another in like position at East Chi-
cago, Gary is practically the same, but by it-
self. One group is at the fine railroad intersec-
tion of Chicago Heights, another on canal and
trunk line at Joliet. The largest number are
actually within the city limits of Chicago, and
of course amply provided with switches from
main lines.

Certain economic features are pertinent when
considered in relation to technical education.
As an instructor in a technical school and sur-
rounded by all these thirty plants the question
is always popping up day after day—are the
plants oversupplied with technical apprentices?
—is there a chance for us in the plants when
we graduate? Likewise managers often ask:
"How many students do you graduate this
year?"

A candid survey of the field discloses in the
most positive manner that the plants are woe-
fully lacking in technical apprentices. Many
plants of considerable size have absolutely none
at all; few plants have over a very few, no
plant has even a safe number. On necessity
major positions are filled suddenly by calling in
men from the outside, or by too rapid promo-
tion. A huge increase in understudies would
greatly stabilize and promote the efficiency of
the establishments. From conversations with
staffs of the plants and acquaintanceship with
a great many men it is evident that the positions
are usually educating the men rather than the
men developing the technique from standing already attained by world experience. In other words the local industries are young, the men are young technically and not yet fully shouldered to their jobs.

This is not contradictory to the fact that brilliant work is being done and that as fine engineers as the world has are to be found at work right here; it is the statement covering the whole of the conditions, flattering or not as may be the case in any particular instance.

Why, then, is there no great rush and large development of metallurgical and chemical engineering, and industrial chemical education? The fact is that graduating chemical engineers do not apply for jobs in the works with a view of building themselves up to be strong and capable directors and managers.

It needs inspiration and patient teaching and careful attention to show young men that the road to competence and ability leads through years of study and years of work and years of laboring with men. The painting of industry is not made rosy enough; the music in spluttering steel is not caught by responsive ears; the hum of the generator is only a noise and not the rhythm of uncountable trillions of electrons flashing through metal and liquid and doing useful work; the thunder of the rolls is only a crash and not the melting of a solid solution and the generation of a structure in the metal; the glow on Chicago clouds night after night is only "something" far away, and not the combustion of molten silicon, manganese, carbon and iron in the crazy passion-born converter of the steel plants on the Calumet.

We have to teach the young men to hear the world-encircling need for educated and trained men, something more than boys; this is the hard part of teaching. It is easy to tell of strengths and chemical equations and heat quantities, but it is one of the most difficult matters in the world to teach young men, the ordinary boys, to see practicability, to see reason, utility and beauty in the laborious winning of mastership of men and matter and energy.

The gap between laborer and expert is slightly bridged; it is there for hundreds of young men to fill can they only hear the call. Easy jobs in offices and laboratory, salesmanship chances, but chiefly blindness to possibilities keeps the field a rich harvest for the few who do "make good."

In offering the few views of the plants here given the words of a contemporary have not yet lost their sting "Outside views are worthless." Outside pictures, on the contrary, give all that one can find in the picture. The belching of smoke and steam, the shroud of fume and dust, the towering bridge and stack, the wooden shed or steel skeleton, the boat or railroad track, the piles of ore or great dump of scrap and waste, each has its message. As the artist stumbles about to express the soul of life and probably finds his best expression in the most accurate delineation possible, so we accomplish something in attempting to show the plant, with or without its halo.

STOPPING DISTANCES FOR AUTOMOBILES.

EXPERIMENTS made in New York for determining the shortest distances in which an automobile can be stopped when running at different speeds show that every increase of 50 per cent over 20 miles an hour increases the distance required for stopping over 100 per cent, and that a car running 40 miles an hour will go more than four times as far, before it can be stopped, as a car running at half that speed, or 20 miles an hour. The tests were made with a 50-hp. car with brakes in perfect working order. At eight miles an hour, the car was stopped within six ft., while at 15 miles an hour, 15 ft. of distance was required. A space of 25 ft. was required for stopping with the car going at 20 miles an hour; 33 ft., at 30 miles an hour; 57 ft., at 35 miles an hour, and 103 ft., at 40 miles an hour.—Popular Mechanics.
Where Pearls Grow

By Lucien N. Sullivan, '86

It is stated in historical accounts that on the third voyage of Columbus to America in 1498 many natives along the Northern coast of Venezuela who visited his ship, wore bracelets and other ornaments of pearls. From that period to the present time pearls have been taken from waters surrounding Margarita Island which belongs to Venezuela and is not far from its northern coast. A three year lease on these fisheries is supposed to be now in force granted by the Venezuelan Government to a lessee for the sum of $800.00 monthly.

About 50 miles from Panama City in the Gulf of Panama are located several islands usually known as the Pearl Islands on account of the pearls found in the surrounding waters. The source of largest supply of pearls is probably the Ceylon fisheries but they are found in many other places, among which may be noted Tahiti and the Torres Straits on the northern coast of Australia. This article however has to do with the pearl fisheries along the west coast of Mexico and especially those in the Gulf of California, usually designated as the La Paz fisheries. Early accounts credit the discovery of pearls in Mexican waters to a general in the army of Cortez, contemporaneous with the "Conquest of Mexico."

La Paz has been for a number of years the headquarters of the pearl fishing industry of the west coast of Mexico. Up to the end of 1912, when the revolutionary troubles in Mexico interfered with most industries, there had been about 300 men engaged in pearl fishing belonging to expeditions sent out from La Paz. Of the above number only 30 were employed as regular expert divers. A good sized expedition consisted of a schooner of perhaps 150 tons burden, called the "mother ship" and 5 or 6 "luggers." A "lugger" is a small sloop from which the diver operates. It is fitted with an air pump, and the boat's crew consists of the diver, one life line man, one man to manage the air hose and two men to work the pump which supplies air to the diver; the hose being attached to the helmet of the diving suit.

The La Paz fisheries are noted for the production of the fine green, blue, pink, and bronze pearls. A pink or green pearl of good orient or lustre and perfectly regular in shape whether round or egg shaped will have, weight for weight, about the same value as a ruby. The writer does not know of any reasonable explanation as to what causes a pearl to be of any particular color. The various causes of a pearl forming are, however,
more or less definitely established. One thing is quite certain; a gem pearl is never formed around a grain of sand. Pearl oysters have a beard like growth passing through an opening between the two halves of the shell where it hinges, by which they attach and sustain themselves in a position perpendicular to the supporting surface. They are found at depths varying from 20 to 60 or 80 feet and on the floor of the ocean at that depth there is no movement of sand. Eighty feet is about the limit for a diver, and there he can only remain a very few minutes since the air pressure is about 40 pounds to the square inch. Thirty to 50 feet is a good working depth with the present style of diving dress.

A section through a pearl shows rings like an onion but no centre of foreign matter acting as a nucleus ever appears. The concentric rings are presumably caused by the nacreous fluid becoming solid by stages. Pearls in incomplete stages show an outer crust and a fluid interior, and this is taken as evidence that the hardening process begins at the outer surface.

It has been noticed, in parts of the ocean where certain water mites abound that pearls are found in greater numbers, and the theory is accepted that the eggs of these water mites being taken into the interior of the oyster cause a wound or abrasion in the flesh resulting in a sack like envelope forming and becoming filled with nacreous fluid. The writer has seen numerous specimens of the sacks containing partly formed pearls. A true gem pearl is usually found right in the body and often in the stomach of the oyster. The operation of formation is quite analogous to a burn or other injury raising a water blister on the skin. The size of the little envelope or sack in the oyster determines the size of the pearl. Sometimes pearls are found incomplete and though hard all through, of a dull brown color. Taking on a brilliant exterior seems to be the final stage.

After a pearl is complete and the enveloping sack begins to decay, the oyster is sometimes enabled to eject it and hence valuable pearls in many cases never come to light.

What are termed baroque pearls are those of irregular or unsymmetrical shape, formed between the shell and the flesh of the oyster, although those sometimes may be found quite regular in form. But they lack the beautiful lustre of the true pearl. A true white pearl appears as a little ball of quicksilver surrounded by a transparent lustrous skin, and is so elastic that it bounces like ivory.

In making necklaces pearls have a tiny hole bored through them and are usually strung on horse hair; the hair being knotted after each pearl to prevent them being lost by slipping off the string if it should be broken. For pendants, rings, or scarf pins they are usually pegged on. The pegging consists of boring only a little distance into the pearl and inserting a pin which is soldered into position. A mechanical man would perhaps call this a “stud bolt fastening” in order to be real technical.

Now if any young man has an idea of presenting his bride with a string of pearls, he must expect to make a big hole in a bank account of most any dimension. I waited two years right in a pearl neighborhood to secure for a scarf pin a green pearl which was small enough not to wipe out my bank account entirely.

The Gaekwar of Baroda in India possesses several ropes of pearls valued at $15,000,000. The gentleman’s picture with his pearls on may be seen in a book called “The Pearl,” the authors of which were a Tiffany expert and a member of the staff of the U. S. Bureau of Fisheries.

The most valuable single pearl known to have been secured from the La Paz district was sold for $24,000. The best commercial size is from one to three carats having values ranging from $125.00 to $500.00. The annual average yield of pearls and mother-of-pearl shell from the La Paz fisheries amounted to about $300,000 prior to the year 1913.

Many efforts have been made in the direction of pearl oyster cultivation. Perhaps, the most elaborate and extensive work in this line is the “pearl farm” at the island of Espiritu Santo
THE ROSE

14 miles from La Paz. At this place a number of canals have been constructed and an artificial lake formed as a part of the system. The method consists in having crates filled with wooden frames sunk into a protected bay, with the idea of having the spat or spawn, floating in the surrounding water adhere to the small projections on the wooden frame work in the crates. These are 8 feet long, 3 feet wide and 30 inches deep. Concrete inclines extend down into the water so that the crate being slid down is submerged to a depth of some five feet. Pearl oysters in convenient numbers are placed in the vicinity of the crate, which is screened at the ends, allowing the sea water to circulate freely. Several years of observation provided data as to the approximate time for the oyster to give off spat. A single oyster produces many thousands of the tiny eggs. After the proper time has elapsed the crates are drawn up and the young oysters, about the size of a 25 cent piece, are removed from the crate frames and placed in galvanized iron trays about 15 inches long, 7 inches wide, and 2 inches deep, the top being covered by wire netting. The netting is necessary to protect the young oyster from attacks of sea nettles and other enemies. These trays are placed in the canals where the sea water flows back and forth with the rise and fall of the tide. When the oysters have reached such size that their shells afford sufficient protection, they are taken from the trays and planted in the open bay, to be taken up when full grown, and examined for pearls. The undertaking has been successful so far as production of shell is concerned but the number of pearls secured has not brought financial profit to any great extent.

WHERE THE JUNE GRADUATES ARE.

Arthur T. Arnold, Youngstown Sheet & Tube Co., Youngstown, Ohio.
Frank J. Baxter, with Vandalia R. R. Co., Terre Haute, Ind.
F. Edward Bundy, with General Electric Co., Lynn, Mass.
Ruel F. Burns, Terre Haute Paper Co., Terre Haute, Ind.
William E. Carter, Columbian Enameling & Stamping Co., Terre Haute, Ind.
J. Norvin Compton, with Prest-O-Lite Co., Indianapolis, Ind.
Chester Cotten, assistant designing engineer Carbo Steel Post Co., Chicago, Ill.
Charles E. Downing, Big Four R. R., Mt. Carmel, Ill.
Charles S. Duddleston, Beaver Valley Traction Co., New Brighton, Pa., 1462 3d avenue.
Samuel Finkelstein, with Wagner Electric & Mfg. Co., St. Louis, Mo.
Joseph S. Gillum, Greenfield Ditch & Levee Association, Prairieton, Ind.
Lawrence D. Gwinn, Terre Haute Water Works Co.
J. Earl Ham, with General Electric Co., Schenectady, N. Y.
John C. Harger, Michigan Division Vandalia R. R., Logansport, Ind.
Herman E. Mayrose, with Ingersoll Milling Machine Co., Rockford, Ill.
Ernest B. Plott, General Electric Co., Schenectady, N. Y.
Lynn H. Reeder, Vandalia R. R., Decatur, Ill.
John Reid, graduate student, Columbia University, New York, N. Y.
John M. Sanford, Southern Chemical Laboratories, Chattanooga, Tenn.
Ernest Sheldon, Vandalia R. R., Terre Haute.
Rowland M. Smith, Citizens Gas Co., Indianapolis, Ind.
Charles N. Stevens, instructor of mathematics, Terre Haute Vocational School.

Oscar W. Stilz, Nordyke & Marmon Co., Indianapolis.

George J. Stoner, Vandalia R. R., Indianapolis, Ind.

Frank E. Sullivan, Allis-Chalmers Co., Milwaukee, Wis.


Hugh E. Wallace, with Bogle Land Co., Terre Haute, Ind.

Edward P. Wallner, Nordeyke & Marmon Co., Indianapolis.

Joseph C. Wilson, with Morris & Co., Union Stock Yards, Chicago, Ill.

J. Robert Wisely, American Bridge Co., Gary, Ind.

Harold R. Woodward, with Ohio Oil Co., Bridgeport, Ill.

NOTES.

E. J. Ducey is instructor in civil and high-engineering, Pennsylvania State College, State College, Penn.

S. H. Early, '87, who is employed in the engineering department of the Southern Pacific at El Paso, Texas, visited the Institute in September. Early was the man who introduced football at Rose.

A marriage of interest in alumni circles is that of Miss Marie A. Fuller to Wilbur M. O'Laughlin, '14. The ceremony took place Saturday, September 25, at Terre Haute. Mr. and Mrs. O'Laughlin will be at home at Sandpoint, Idaho, where Mr. O'Laughlin is employed with the Northern Pacific Ry.

L. A. Lewis, '13, in the Panama Canal service, visited the Institute during the summer while home on his vacation.

Carl G. Davies, '05, of Portland, Oregon, visited the Institute Thursday, Sept. 23.

A. J. Paige, '02, is at present located at Detroit, Mich., where he is developing and perfecting his gas turbine preparatory to its manufacture. Mr. Paige has secured the aid of Canadian capital and expects to have his turbine on the market in a very few months.

J. H. Service, '12, is attending Ohio State University as a graduate student. He is majoring in physics.

G. O. Klingman, '14, visited Terre Haute during the summer. Klingman is with the Denver Gas & Electric Co.

J. E. Mack, '87, has been appointed state engineer of Wisconsin by the railroad commission, under a legislative act creating an engineering department. Owing to Senator La Follette's activities in requiring Wisconsin railroads to report the actual value of their properties, this position means much. Mr. Mack will receive a salary of six thousand. In leaving the University of Wisconsin, he is vacating a position which he has held for thirteen years.

Benjamin G. Elliott, '10, has been appointed associate professor of mechanical engineering at the University of Nebraska.

John G. Bland, '05, was married October 20th, to Miss Ethel Swann Bacon, at Louisville, Ky.

W. H. Brewer, '13, who was located at Decatur with the Logansport Division of the Vandalia, has been transferred to the main line at Terre Haute.

J. H. Service, '12, was married August 15th to Miss Louise Palmer Lindsley at Harbor Springs, Mich.

J. F. Cronin, '13, with the A. T. & S. F. Ry. at Macceine, Mo., visited the Institute during the summer.

H. E. Ransford, '14, was this summer married to Miss Ethel O'Haver of Terre Haute.

J. E. Dailey, '05, stopped in Terre Haute Saturday, Sept. 25, on his way to Sault Ste. Marie, where he will take charge of the plant of the Algoma Steel Co. Mr. Dailey was formerly with the Brier Hill Steel Co. of Youngstown, Ohio.
Dear Steve:

Well, Steve, here I am, but I never knowed I was going to no school where they raized prize fitters. I've foughten in 5 scraps and so far I've got threw without no injurys. If theys anyone who still wants to fight he should ought to turn professional.

The 1st day I got here the freshmen class met & they was 2 Jrs. come up & told us to meet somewheres and get the Softmores or else the Softs would get us. We all so elected a scrap Capt. He was a big fat bloke named Piker, or Peekar. Of course I didn't have no chanct, Steve, because none of the guys knowed me. Well we met down to a high school here, but the Softmores allso met somewheres & we met a bunch of them on Mane St. Well, Steve, believe me we had some fight, but I wouldn't fight on a sement sidewalk again for $1,000.00. Some big Soft pounced on me, but I was right there & I guess he soon saw his mistake but before I could do anything some of the Srs. stopped the fight because they that the Softmores was getting licked, onley they didn't say it that way.

Well we quit then, Steve, & all us Freshmen went back to the high school where we 1st met. We didn't expect the Softmores to come around to get licked again but they did & we had a fight in a mud hole back of the H. S. It didn't last long either, because some freshman thot he broke 1 of his ribs & so the Srs. & Jrs. made us quit again. We could of licked them sure in 5 min. more.

Well I went home then, but the next afternoon the Softmores got busy & tried to get us & haul us out in the country so we couldn't get back in time to be in the chalenge rush. Well, Steve, I knowed they was coming so I went down to the resterunt. Any time they catch me in my own room, eh Steve? But some 1 must of tole them I went down to eat, because they come down & hooked me off a stool & took me out riding. Well, Steve, I liked the ride all-right but I had to walk back 10 or 12 mi, or at least 3 or 4, but I got back in time for the scrap all right.

The chalenge rush was some fight, believe me, Steve. They fenced off a big place for us to fight in & they had a big pole in the middle with a chalenge. Our bunch was suposed to go in there & hook that chalenge, but Steve, we never had a chanct because the Softmores stuck in a bunch of ringres for that fight. They finely chaned us up, but it took then 1 hr or more.

Well Steve, they got some drays & hauled us out of town & just to show how much branes they had they cut a ridge down the middle of my hair. I tell you Steve, it ruined my pom-padoor but I don't care much now as I haven't a lady here yet.

They dumped me off the dray somewheres I don't know where because some of the Jrs. got me & took me back to town in a machine right away. Pretty soft for Bill, eh Steve?

That was all for a while Steve, but we had 2 more scraps on Sept'r. 25th. We had a ball game first & we lost 8 to 0. We only played 1 inning or else we would of probably tied the count. Then some freshman yelled “pipe” & believe me Steve, it was a pipe. The Softmores
were supposed to take some little pipes away from us but they couldn’t of done it in 1000 yrs. Then we had another scrap called the big pipe rush. We all lined up at 1 end of the football field & the Softmores at the other. Then a Prof. named Hath’sway threw up a big pipe that he’d been prancing around with all afternoon & we scrapped for that pipe. Well Steve, what do you think, the lucky Softmores won the scrap. When 5 min. were up they had 17 hands on that pipe to our 14.

Well Steve, the fights are all over for this year, but I wish I was threw for good. But if we had any luck we could win ’em all & all I say is watch out for us next yr. Eh Steve.

Yours res’py,  
BILL ’19.

(Apologies to Ring W. Lardner.)

THE FRESHMAN RECEPTION.

The Freshman Reception was held at the Heminway House on Saturday evening, October 2, and due to the efforts of the faculty and their wives, as well as the officers of the Y. M. C. A., the affair was a complete success.

Only a short program was planned, the committee in charge deeming it best to make the affair one at which the Freshmen could more easily become acquainted with each other, and with the upper-class men, rather than to adhere to a formal program. The usual identification cards were in evidence, Freshmen and upper-class men alike being duly tagged and numbered as they arrived. Of course, no Freshman reception could be complete without the usual speeches from the usual speakers. Doctor Mees, Doctor White, and Professor Hathaway each spoke a few words. The Rev. Richmond also assisted on the program, his particular stunt being the performance of various feats of legerdemain. After the program, the gathering turned into a general “get-acquainted” meeting. The climax of the evening was, of course, when the refreshments were served.

The reception served to introduce many of the new men to the Heminway House and its possibilities.

With this successful start, the Y. M. C. A. is looking forward to a prosperous year. President Stuart announced that this organization was contemplating holding a number of “spreads” during the winter months in hopes of bringing the Rose students together more often.

THE JUNIOR BARBECUE.

On the evening of the 29th of September the Juniors introduced a new form of celebration into the Rose calendar when they held their first barbecue on the river bank, about two miles south of the city. Nineteen loyal Juniors turned out for the affair, and encouraged by the success of the initial attempt, they hope to hold a number of similar gatherings during the year.

The members of the class were carried to their destination in automobiles and upon arriving at eight o’clock were made welcome around an immense campfire, which had been prepared earlier in the evening. Everyone being hungry, there was little time wasted in preliminaries; the cooking and roasting were soon under way, each man being required to do part of the work. The supper was served at about nine o’clock, the amateur chefs not being able to establish a record for speed. After the supper the Junior Quartet introduced an original version of “St. Patrick Was An Engineer.” This led to other songs, and between songs and stories it was almost midnight before the gathering broke up. Among the real features of the evening were Binhack’s lecture on Horse Anatomy and Goldstine’s demonstration of his ability as a civil engineer in measuring the rise in the river.

It is interesting to note that of the nineteen men present, there were eight Electricals, six Mechanicals, four Civils, and one Chemist.

The entire party walked back to town, and no doubt startled many of the rural denizens with such tunes as “A Rambling Wreck” and “St. Patrick Was An Engineer.”

ORGANIZATIONS.

The Rose Tech Camera Club has completed arrangements for a very interesting contest which is to close on Nov. 12, 1915.
The contest is for athletic pictures, especially those in which Rose is indulging. Every student upon the payment of his student fund becomes eligible to enter. A great amount of interest has already been shown by the older members of the club, and it is hoped that the Freshmen will take advantage of this opportunity and show what they can do with the camera. Prizes will be awarded, varying according to the number of contestants entered.

On Sunday, October 3d, the Camera Club took a trip to Forest Park. Quite a few such trips have been arranged for; they should give new students a good opportunity of getting acquainted with Terre Haute's beauty spots.

The officers for the year 1915-16 are: H. C. Gray, president; M. H. Smith, vice-president; G. W. Brookes, secretary.

The Students' Branch of the A. I. E. E. up to the time of this issue of The Technic going to press has not held its annual election of officers.

This year's officers for the Scientific Society are: President, J. F. O'Brien, '16; secretary, O. P. Hutchinson, '16; senior councillor, C. E. Pigg, '16; junior councillor, M. H. Smith, '17; faculty advisers, Professors M. A. Howe and John White.

The Rose Y. M. C. A. has again opened the Heminway House this year, and there is always something doing down there. Every student now has a chance to play pool on a good table gratis and enjoy all the other privileges of the club. It seems strange that more do not take advantage of it.

The officers for the year are: President, R. A. Stuart; vice-president, Floyd S. Carpenter; secretary, Chester C. Smith; faculty advisor, Professor Frank C. Wagner.

The Student Council for the year 1915-1916 is composed of the following members:

Senior Class—Howard O'Laughlin.
Junior Class—Fred Wyman.
Sophomore Class—P. J. Grafe.
Freshman Class—R. L. Tilley.
Camera Club—H. C. Gray.
Athletic Association—C. F. Carlisle.

Technic—F. W. Hild.
Scientific Society—J. O'Brien.
Symphony Club—S. Leibing.
Financial Secretary—R. A. Weinhardt.
Y. M. C. A.—R. A. Stuart.

The officers are: Howard O'Laughlin, president; J. O'Brien, vice-president; R. A. Weinhardt, financial secretary; P. J. Grafe, recording secretary.

The Symphony Club, which is composed of the Glee Club and Orchestra, have elected the following officers: President, S. Leibing; first vice-president, V. Whelan; second vice-president, J. Rector; third vice-president, C. Smith; secretary, Anderson.

The Rose Glee Club has elected the following officers: President, S. Leibing; secretary and treasurer, Sam P. Stone; representative to Symphony Club, Anderson and Failing.

The officers for the Orchestra are: W. S. Risser, president; D. M. Howard, vice-president; J. C. Rector, secretary and treasurer; R. B. Shorten and V. J. Whelan, representatives to the Symphony Club.

The Athletic Association is composed of the following members: Senior Class, C. F. Carlisle and R. I. Kattman; Junior Class, W. C. Wente and W. S. Risser; Sophomore Class, D. M. Howard and J. E. Orr; Freshman Class, H. W. Streeter and A. Reinhardt. Carlisle has been elected president of the association, but the other officers have not been selected.

The class officers for this year are named below:

Senior Class—President, H. O'Laughlin; vice-president, Sam P. Stone; secretary-treasurer, Hutchinson.

Junior Class—President, F. W. Hild; vice-president, E. Richards; secretary, T. Evans; treasurer, M. H. Smith; representative to the Student Council, Wyman.

Sophomore—President, P. J. Grafe; vice-president, A. Gouvea; secretary-treasurer, J. W. Mikes.

Freshman—President, Robert Tilley; vice-president, A. King; secretary-treasurer, R. P. Gillum.
OFFICIAL SCHOLARSHIP RECORDS.
Second Term, 1914-1915.
Average all students .................. 78.79%
Average all fraternities................. 78.33%
Average non-fraternity men ............. 79.63%

CLASSES.
Senior .................................. 78.92%
Junior .................................. 78.31%
Sophomore ................................ 80.63%
Freshman ................................ 78.22%

FRATERNITIES.
Alpha Tau Omega ........................ 78.33%
Sigma Nu ................................ 76.68%
Theta Xi .................................. 79.83%
Alpha Chi Sigma ......................... 83.05%
P. I. E. S. ................................ 75.63%
M. E. P .................................. 80.36%
V. Q. V .................................. 79.00%

ATHLETICS.
Baseball .................................. 76.07%

THE FRESHMAN CLASS.
Abbett, Raymond F., Terre Haute, Ch.
Anthony, Benjamin F., Terre Haute, E.
Barnes, Alvin N., Jr., Terre Haute, M.
Bruning, William H., Indianapolis, E.
Buck, R. Paul, Terre Haute, Ch.
Cain, John R., Terre Haute, M.
Cromwell, DeWitt, Indianapolis.
Defel, George H., Terre Haute, Ch.
Ervin, Arthur L., Terre Haute, Ch.
Fischer, Carl L., Terre Haute, E.
Floyd, Owen G., Terre Haute, E.
Fuqua, Paul L., Terre Haute, M.
Gillum, Richard P., Terre Haute, M.
Geiger, Adolph A., Louisville, Ky., M.
Gilkison, Robert R., Terre Haute, M.
Gosnell, Clarence H., West Terre Haute.
Harrison, Harry H., Lexington, Ill.
Hauk, J. Walter, Terre Haute, M.
Hearn, Herschell A., Vermillion, Ill., E.
Kautz, Arthur E., Worthington, M.
King, Alexander P., Terre Haute, E.
Kurfess, Leland S., New Albany, Ind.
Leathers, Richard A., Louisville, Ky., M.
Mendenhall, Ivan S., Terre Haute, E.
McKeen, William R., Terre Haute, C.
Miller, Emmett L., Terre Haute, Ch.
Murphy, Thomas N., Terre Haute, M.
Owen, Robert J., Indianapolis.
Owens, George M., Terre Haute, Ch.
Peavey, George P., Terre Haute, Ch.
Peker, Frank F., Terre Haute, M.
Penno, Carl H., Terre Haute, Ch.
Piety, John K., Terre Haute, M.
Petri, J. Stanley, Indianapolis, M.
Probst, George R., Terre Haute, M.
Reinhard, Adolph E., Terre Haute, M.
Reese, Joseph, Terre Haute, E.
Richardson, Aaron W., Terre Haute.
Rowe, Clinton A., Linton, M.
Schilt, Frank C., Olney, Ill., C.
Schlaman, Herman G., Terre Haute, Ch.
Shipley, Clarence, Seelyville.
Stinson, Lester S., Terre Haute, M.
Streeter, H. Winton, Terre Haute, M.
Thompson, Edwin, Pimento, C.
Thiry, K. Paul, Winslow, A.
Tilley, Robert L., Terre Haute, C.
Werbner, Simon, Terre Haute, Ch.
Wessel, Earl, Richmond, M.
Woodruff, Robin E., Louisville, Ky., Ch.
Wilson, Everett G., Riley, C.
Wiedemann, Rudolph F. E., Terre Haute.
Zimmerman, John Charles, Terre Haute, Ch.

THE GENERAL ASSEMBLY.

The first general assembly of the year was held Saturday morning, October 9. Talks were given by Dr. Mees, Dr. White, and Professor Hathaway. Walter B. Wiley, '89, also spoke a few words, emphasizing the advantages that a small school has over a larger institution, and making a plea for stronger school spirit. Coach Gilbert was the next man on the program. He delivered a talk on the necessity of the entire student body getting "back of the team." "I want every man who is not out for
the team to come out to every game and root," said Gilbert. After the speeches a yell leader was elected. Hild, '17, was chosen.

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SENIOR LOCALS.

The Senior Civils and the Senior Chemists took a trip to Otter Creek on October 7. Professor Thomas took the Civils with him to gauge the flow of the stream, and the Chemists to check the Civils. The party left town on the 11 o'clock car, and returned at 4 o'clock. The same method was used by the Chemists last year in the river, but the results were far from accurate. This year, with the much smaller stream, they should be better. An interesting discovery this time was that of a fine orchard, which did a rushing business in the absence of the owner.

The Seniors appeared in their shop uniforms earlier than usual this year, and held the customary parade on the afternoon of Sept. 30. The garments are one piece, tan jumpers, and the members of each course have a characteristic emblem stenciled on the suit in black. The Chemists adopted a mortar and pestle, the Electricals a dry cell, the Mechanicals a monkey wrench, the Civils a transit, and the Architects a triangle and tee square. The parade formed on the campus, and marched west on Locust to Seventh street, down Seventh to Wabash avenue, west to Sixth, and then to the Hippodrome, where admittance was kindly, but firmly, refused. By means of much persuasion, however, the gang was allowed to sit in the balcony, where a poor show was not enjoyed. The act, entitled "An Oriental Dream," was especially disappointing. The parade was headed by a fife and drum corps, composed of Carlisle, Merrill, Pigg and Stone. A bass drum solo by Mr. Pigg was a feature.

Although an official ultimatum has appeared on the bulletin board, the Senior class again emphasize the fact that corduroy trousers are to be worn solely by Seniors this year, and that any one else wearing them to school will need a barrel for the homeward walk.

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THE ROSE

TECHNIC.

Eleven of the Senior "machine designers" took advantage of Professor Peddle's offer to pay half their railroad fare, and went to Indianapolis Sept. 24, to hear an address by Mr. J. G. Vincent of the Packard Company. He talked on the theoretical advantages of the twelve cylinder motor car. Mr. Diamond also gave a short talk on aluminum alloy pistons.

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MINUTES OF STUDENT COUNCIL MEETING.

Monday, October 4, 1915.

MEETING called to order by Financial Secretary Weinhardt, with all members present.

ELECTION OF OFFICERS.

President—O'Laughlin nominated by Grafe, second by Hild; Leibing nominated by Wyman, second by Stuart. Moved by Grafe, second by Carlisle, that nominations be closed. Carried. O'Laughlin elected. O'Laughlin took up the duties of president at once.

Vice-President—O'Brien nominated by Hild, second by Grafe; Carlisle nominated by Gray, second by Wyman. Moved by Leibing, second by Hild, that nominations be closed. Carried. O'Brien elected.

Recording Secretary—Grafe nominated by Hild, second by Carlisle. Moved by Leibing, second by Hild, that nominations be closed. Carried. Grafe elected.

REPORTS OF STUDENT ORGANIZATIONS.

Athletic Association, no report.
Scientific Society, no report.
Camera Club, no report.
Symphony Club, no report.
Y. M. C. A., no report.
Rose Technic, no report.

FINANCIAL SECRETARY'S REPORT.

<table>
<thead>
<tr>
<th>Organization</th>
<th>Dr.</th>
<th>Cr.</th>
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<tr>
<td>Athletic Association</td>
<td>$272.02</td>
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<tr>
<td>Y. M. C. A.</td>
<td>4.31</td>
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<td>Symphony Club</td>
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<td>Camera Club</td>
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<td>Scientific Society</td>
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Rose Technic .................. 21.01
General Fund .................. 18.80

$276.33  $82.79

The Y. M. C. A deficits have been paid out of general fund.

Tilley reported that green caps for Freshmen were ordered. The Student Council instructed Tilley to tell the Freshmen to begin wearing the caps as soon as they could be obtained, and to wear them at all times when on the campus of the Institute.

Moved by Hild, seconded by Stuart, that a committee be appointed to draw up a resolution, which is to be signed by all students, that pledges all loyal students to patronize the advertisers in The Rose Technic and Y. M. C. A. Handbook. Carried. Hild, O’Brien and Gray appointed.

Moved by Hild, seconded by Gray, that Student Council meetings of this school year be held at the Heminway House at 7:15 P. M. on the first Friday of each month. Carried.

Moved by Grafe, second by Weinhardt, that a committee be appointed to formulate a plan for lengthening the noon intermission. Lost.

Moved by Tilley, second by Stuart, that meeting be adjourned. Carried.

P. J. Grafe, Rec. Sec.
THE ROSE TECHNIC.

Here Is Something of Importance!
READ IT AND ACT ACCORDINGLY
CLASSIFIED LIST OF OUR ADVERTISERS

Art Shops.
Kadel’s.

Banks and Trust Cos.
The Citizens Trust Co.
The Terre Haute Trust Co.
Barbers.

Holden’s Barber Shop.
Bud Stewart.
Great Northern Barber Shop.
St. Nicholas Barber Shop.

Books and Stationery.
R. F. Marley Co.
Craft Book Store.

Clothiers and Men’s Furnishing.
Lee Goodman & Son.
Ed Sparks.
The John Ford Store.
M. Joseph’s Sons.
Tune Bros.
The House of Foulkes Bros.
Myers Bros.
The Root Dry Goods Co.
Confectioners.

Greek Candy Kitchen.
Dentists.

Dr. Walter G. Rice.
Dr. R. W. Van Valzah.

Druggists.
Gillis Terminal Pharmacy.
Polytechnic Pharmacy.
Black and Cook.
Great Northern Pharmacy.
Baur’s Pharmacy.

Dyers and Cleaners.
Ermisch.
Frank V. Smith.

Florists.
John G. Heinl & Son.

Hardware.
Freitag & Weinhardt.

Hats & Caps.
Bill Cody.

Hotels.
Hotel Deming.

Ice Cream.
Furnace Ice Cream.

Insurance.
Mutual Life Insurance Co.

Jewelers.
J. M. Bigwood & Son.
Swope-Nehf-Bloomer Co.

Laundries.
Hunter Laundry & Dyeing Co.
Temple Laundry Co.
Columbian Laundry Co.

Moving Picture Shows.
The Orpheum.
The Grand Opera House.

Opticians.
Leeds-Murphy Optical Co.

Photographers.
Mecca Studio.
Martin’s Photo Shop.

Eye, Ear, Nose & Throat Specialists.
James McCall, M. D.

Printers.

Professional Card.
Arthur M. Hood.

Restaurants.
Mary Stuart Cafe.
Great Northern Cafe.
Colonial Dairy Lunch.

Havener’s Cafe.

Shoe Stores.
Hornung’s.
Walk-Over Boot Shop.

Shoe Repairing.
Max Frank.

Sporting Goods.
L. D. Smith.

Tailors.
Black & Cook.

Theatres.
Grand Opera House.

Transfer & Baggage.
Morge Delivery Co.

Y. M. C. A.

City Y. M. C. A.
ROSE has her ups and downs in athletics as we all do in various other things, but get this—the 1915 season is going to be one of the “ups,” unless this judgment proves to be too optimistic. Graduation last year did not damage us much, and in the veterans of last season we have the backbone for a winning combination this year. In spite of rain throughout the first week, more than two full teams reported every evening. Coach Gilbert is pleased with the quality as well as the quantity of material and with the “pep” shown in the regular nightly work-outs.

Among the regulars of last season are Capt. Carter, Sommers, Davis, Trimble, Yatsko, Goldsmith, and Buck, all good men and showing up well this year. All of them will doubtless hold positions on the regular squad.

The new material includes Wagner, W. Tilley, Bolton, R. Tilley, Miller, and Evans, all fighting for the end and back field positions. Floyd is a likely looking candidate for center, and Blake for one of the guards; Barnes is sure to hold a regular berth in the line. Weideman, Fisher, Crapo, Woodling and Petri are also trying for line positions. Grafe, who played in several games last year, and Orr, a new man in football here, are both promising back field candidates.

Coach Gilbert is giving the men stiff work-outs and signal practice every night, and is rapidly rounding the squad into shape, as evinced by its action in the two first games.

There are a number of good teams over the state this year, but there is no reason why the “Fighting Engineers” can not be among the best of them. We’ve got the material and the coach, and now let’s have the support in the form of organized rooting. Every man who does not actually support the team by being present and showing a little ginger at the games is, in effect, a knocker and puts his own little wet blanket on the aspirations of the team.

In the opening game of the season Rose swept Eastern Illinois State Normal off their feet, 34 to 0, thereby just reversing the tale as it was told at this time last year. The Rose warriors hit their stride and walked through the husky squad from Charleston in a way that was a revelation. All the old-time “pep” and spirit was there; within three minutes from the kick off, Orr carried the oval across the visitors’ goal for the first touchdown of the game and of the season. All the scoring was done in the first half, as Gilbert sent in his second string to offer the opposition in the second set-to.

The Teachers were not as tough a proposition as had been expected; the Rose men were not pushed hard at any time, but at that their performance looked good for an early season game. Every man on the team deserves a word of praise for starting the season with a win. Carter and Orr were found in every play. Yatsko played a smashing game at full, and Buck ran the squad in snappy style.
Normal kicked off to Rose and Goldsmith returned the ball to the Rose 20-yard line. On the next play Joe got around end for a gain of forty yards. Gains through the line by Yatsko and Buck carried the oval to the visitors’ 10-yard line, when Doc Orr took it across for the first marker. Carter kicked goal, score 7-0.

Yatsko kicked off to Newlin. Bigler then tore off 15 yards around end and a forward pass netted 15 more. Another pass was incomplete and the visitors were forced to kick. Buck received and was downed on the 15-yard line. Joe punted and Normal returned 30 yards. The visitors then attempted a forward pass which was incomplete; they were forced to punt. Buck returned the oval 25 yards. Joe and Yatsko smashed through the line for 15 yards, carrying the pigskin to Normal’s 40-yard line. Buck dodged through center for 10 yards and Poly’s second touchdown. Carter made a beautiful pass to Trimble, who raced 40 yards for a touchdown. Carter again booted the ball over the bar, score 21-0.

Rose received the kick off and returned the ball to their 40-yard line. Rose was penalized for offside line plunges by Carter and Yatsko carried the ball to Normal’s 20-yard line, where it was lost on a fumble. Rose held the visitors for downs, and Wilson attempted to punt. The pass went over his head and Poly recovered the oval on Normal’s 10-yard line. A line buck netted five yards and Carter went through for another marker, and followed up by kicking goal, score 28-0.

Immediately following the kickoff, Orr intercepted a forward pass and raced 45 yards for the last touchdown of the game. Joe failed to kick, score 34-0. Rose kicked off to Normal, who returned 20 yards. The Engineers took the ball on downs, but here the visitors’ line held for the first time and Joe punted to the visitors’ 10-yard line as the half ended.

Among other changes at the beginning of the third period, Springer went in at quarter, Grafe at half, Floyd at center, Crapo at tackle, and Wagner at end, Trimble shifting to the back field. The new combination did not prove so effective and the ball shifted up and down the field with no result, although at one time toward the end of the third quarter the ball was in play on E. I. S. N.’s five-yard line. More speed was shown in the final period and the play was mostly in the visitors’ territory. The final whistle caught the ball in Normal’s possession, but 85 yards from a score.

NORMAL (0) POS. POLY (34)
Hampton ..........RE.......... Goldsmith
Leach, Hood ..........RT..........Barnes, Henry
Peck ..........RG.......... Sommers
Hutton, Bone ..........C..........Henry, Floyd
Scherer ..........LG.......... Blake
Markle ..........LT..........Davis, Crapo
Endsley ..........LE.......... Trimble
Newlin ..........Q..........Buck Springer
Hampton, Cooper ....FB..........Yatsko
Bigler ..........RH.......... Orr

Carter kicked goal, score 7-0.

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ROSE VS. HANOVER.

The strength of the Engineer’s line, combined with the snappy team work and smashing tactics of the Rose ends and backs, proved too much for the squad from Hanover in the second game of the season. The visitors put up a good hard-hitting game, but were simply outclassed by the speed and strength of the Poly regulars’ attack.

The Fighting Engineers were on their toes throughout the contest, and the performance of Coach Gilbert’s combination certainly looked good to Rose followers. Time and again the Rose tackles and guards opened up holes in the visitors’ line through which Poly’s plunging backs carried the ball down the field. Yatsko at full played a great offensive game, and, time after time, Carter, Orr or Buck skirted the visitors’ ends with splendid interference.

On the defensive the Engineers’ heavy line held like a wall. Sommers and Davis often broke up the opposing play before it was fairly started. Trimble played a good game at end. Buck went through center for many gains, and Carter is showing the usual wonderful form. Rose looks like a contender for the secondary championship, and was honored with the attention of scouts from several other colleges who came down to size up the squad in this performance.

Trotter, Allison and Johnson played well for the visitors, but were unable to overcome the Engineers’ defense.

When Hanover kicked off Trimble received, and returned 10 yards. On the next play Hanover took the ball on a Rose fumble. The scarlet warriors carried the pigskin to the 10-yard line with a rush which threatened to result in a score; they fumbled, however, and Carter recovered the ball and punted out of the danger zone. Hanover recovered on their 45-yard line. James, playing right half for the visitors, made five yards and fumbled. Then the Engineers opened up an attack which swept Hanover off their feet and quickly carried the ball down the field, Buck scoring on a 15-yard gain through center. Carter kicked goal, score 7-0.

Joe kicked onside and Trimble recovered, the ball going into play on Hanover’s 35-yard line. Carter, Orr and Yatsko went through the scarlet line for 15 yards, and Carter skirted the visitors’ end for a touchdown. Failing to kick goal the score stood 13-0.

Hanover returned the kick off to their 35-yard line, where Goldsmith recovered the ball for Rose on a fumble. Carter made five yards through the line. On a fake formation, Buck made 20 yards through center. Yatsko smashed through the line, placing the ball within a yard of the goal. Carter again scored, but failed to kick goal, score 19-0.

Carter booted the ball to the visitors’ 10-yard line and they punted back down the field. Rose took the ball and again opened up a whirlwind attack which carried the ball to Hanover’s 30-yard line, where they lost it on a fumble. Hanover punted out of danger as the quarter ended.

As in the previous period the play was in Hanover’s territory. The Rose backs carried the ball to the visitors’ 30-yard line. Hanover took the ball on downs, failed to gain, and punted. Buck received the ball on the Rose 30-yard line, which was the visitors’ nearest approach to a score in this period. A series of line plunges, shift plays and end runs returned the ball to Hanover’s 40-yard line. Joe got away for a dash of 25 yards, but Rose suffered a 15-yard penalty on the play. There followed another of the several puntig duels in which Capt. Carter and Capt. Trotter engaged, Joe easily having the best of it. Buck returned the visitors’ punt to their 40-yard line. With only a few minutes to play Poly began a fight to score. Carter went around end for 30 yards with splendid interference, one of the prettiest plays of the game. Yatsko made two yards
and Buck five more, placing the oval within two yards of the goal, and on the fourth down Carter carried it over. Apparently Rose should have had a touchdown, but the score was not allowed and the Engineers were cheated by a narrow margin for the second time in this quarter. Hanover punted and the half ended with the score 19-0.

At the opening of the third period, Rose rushed the ball to the visitors’ five-yard line. Here the scarlet line held, but on the fourth down with one yard to go, a forward pass was negotiated, Carter to Goldsmith. Carter kicked goal and the score stood 26-0.

At this point Gilbert began to substitute for the regulars. Springer relieved Buck, Grafe took Carter’s place, and frequent substitutions and changes followed. Nevertheless, the visitors were held in the center of the field. Frequent punts, penalties and incomplete forward pass composed the play. Finally, Johnson grabbed off a forward pass and raced 30 yards for the visitors’ first score. Trotter kicked goal, score 26-7.

Early in the final period, F. James repeated, intercepting a pass and eluding the Rose warriors in a sensational dash of 80 yards for a touchdown. Trotter again kicked goal and the score stood 26-14.

A few minutes later Yatsko retaliated by taking a pass out of Trotter’s hand and racing across the line. Buck failed to kick goal, score 32-14. Line bucks and forward passes brought the oval to Hanover’s two-yard line, and Springer took it across. On the kick out Springer failed to catch, making the final score 38-14.

ROSE POLY (38) HANOVER (14).
Trimble, Grafe, Wagner ..........LE .......... Millis
Davis ................LT .......... Rogers
Bake, Wiedemann,
Crapo ..............LG .......... Van Antwerp
Henry ..............C .......... E. Brasheur
Floyd, Bolton, Grafe, RG ........ A Brasheur
Sommers, Evans,
Petri .......... RT .......... C. James
Goldsmith ..........RE ..........Trotter, Capt.
Buck, Springer ..........QB .......... Johnson
Carter, Trimble ..........LH .......... Reed
Yatsko, Grafe,
Yatsko ............FB .......... Allison
Orr, Woodling ..........RH .......... F. James


COLLEGE NOTES

A ruling has been recently made at the University of Chicago, whereby athletes will be debarred from holding student offices. This is due to the fact that athletic ability has won elections rather than executive talent.

The Sophomores at Stevens have a “get together” period during one of the noon hours. A sort of “Coffee house gathering of Ye Olden Days” it appears to be.

In order to preserve the grass plots on the campus of the University of Missouri, a strong-arm squad has been organized. The members of this committee are to paddle all men who break the regulations, whether they be seniors or freshmen.

The athletic governing board at Syracuse has decided to make tennis a recognized minor sport.
St. Peter—Have you ever kissed a girl?
Shade—No, sir.
St. Peter—Has a girl ever kissed you?
Shade—No, sir.
St. Peter—What are you doing here?
Shade—Well, I'm dead.
St. Peter—Dead? You haven't even lived.

—Michigan Gargoyle.

Some Rose students are inclined to regard the Rose man as the perfect type of the "Engineer Roughneck." Would that it were only true! Let those who believe that read the following rules, issued to students of the University of Montana, and forever hold their peace.

1. You’re not in reconnaissance camp. Therefore, do not spit on the floor.
2. Don’t flip the bones over your shoulders, you might injure a waitress.
3. Do not designate coffee as “mud.”
4. Don’t swear at the table, it sounds like hell.
5. Keep hob-nailed shoes in your own territory—not on your neighbor’s shins.

6. Look natural when the waitress hands you a napkin.
7. Don’t tip the waitress, she might upset.
8. Don’t take the pie in your hand.
9. Please don’t remove shoes while eating, because—
10. Don’t grab anything from your neighbor’s plate.
11. Don’t wipe your nose on napkin or tablecloth, it’s better to secretly use your sleeve.
12. If soup is served, don’t inhale it, or drink from dish. In case it embarrass you to eat it, pass it up.
13. As you enter the dining room, don’t yell “come and get it.”
14. Don’t crowd and rush for a chair for there will be a chair for each.
15. Don’t take everything in your hands and eat it, use a fork whenever possible.
16. Take your time eating, because there will be enough for all and your neighbors won’t take any of your food.
17. If any meat and bread are left, don’t make sandwiches out of them for the afternoon.
18. Don't make audible comments on the food.
19. Don't try to jow the waitress down on the price of the meal; they are fixed prices.
20. Don't eat with your knife; if peas are served, please do not attempt to eat them.
21. Don't ask for salve, call it by its correct name, "butter."
22. Don't drink from the pitcher, use your own glass.
23. Be sure and take off your hat before sitting down at the table.—University of Montana Kaimin.

THE SCRUB.
(With Apologies to Walt Mason.)
They punch his nose, and smear his clothes, and swat him till he's blue. They hit him high, and hit him low, and in the middle, too. They smash a bone to hear him groan, for pity they have none. They hear the coach say, "Croak the roach," and think it's lots of fun. They treat him like a yellow dog, he grins and bears it all. For punishment he is a hog; he has no nerves at all. They say that he's an animal; in brains is lacking quite. They flag him and they rag him, for he's only made to fight.

But although they all regard him in a funny sort of way, and think he's wholly worthless and was only meant to slay, he's the man who really makes success and really wins the fray. No one knows what he's going through, no one can understand—but we know he has just one big thing, and that one thing is sand. We know he must possess it if he sticks the season through, for he simply must keep going, though he's broke and bleeding, too.

So when the game is over, and the shouting's almost done; when your hated foes are trampled, and the victory is won; when you've cheered for all the heroes till your throat is cracked and dry, you should at least give one good yell for that forsaken guy who has sat upon the side lines longing for a chance to try. He's deserving, though forgotten, and although he is a dub, there's the finest, cleanest makin's in the make-up of a scrub.

WE'RE DOING OUR BEST, ARE YOU?
If you have some campus news, send it in,
Or a joke that will amuse, send it in,
A story that is true, an incident that's new,
We want to hear from you, send it in.
Never mind about your style,
If it's only worth the while, send it in,
Alumni news will do, send it in,
Suggestions or a kick or two, send it in,
If you can brighten up the sheet,
Make its value more complete,
With a contribution neat, send it in.
—Case Tech.

TAKE A WALK.
(A Tragedy.)
Scene—Mac's room.
Characters—Prof. McCormick, Carlisle and motley crew, of plumb bob hangers.
Mac enters in the midst of wild orgies, waits till things quiet down and turns to leave the room.
Carlisle, figuring on a sheet of paper, mumbles something under his breath.
Mac (turning)—"What was that?"
Carlisle (continuing his figuring)—"Six and a half!"
Mac—"Are you trying to start something with me?"
Carlisle—"Oh, no, sir!"
Mac—"You take a walk."

Thomas (explaining matters to Goldstine)—"Just wait until you go down to hell with old St. Peter."
No wonder they say we are an uneducated lot!

Customer—"Your cream is very good."
Clerk—"It ought to be. I just whip't it."
—Life.

Waggie in Thermo—"Mr. Evans, what is a 'reversible cycle'?"
Evans—"It's a cycle that can be reversed."
ST. PATRICK WAS AN ENGINEER.

(Being Contributed by Several Juniors, Who Are Advised to Keep Their Identity Dark.)

I.
St. Patrick was an engineer, he was, he was,
St. Patrick was an engineer, he was, he was.
For he mapped out the Emerald Isle,
And fixed it up in Irish style,
Erin go Bragh, Hurrah for the engineer!
Erin go Bragh, Hurrah for the engineer!

II.
St. Patrick founded old Rose Tech, he did, he did,
St. Patrick founded old Rose Tech, he did, he did,
He brought the snakes to Terre Haute
And Mayor Gossom drove them out,
Erin go Bragh, Hurrah for the engineer!
Erin go Bragh, Hurrah for the engineer!

III.
For he designed the first d— cam, he did, he did,
For he designed the first d— cam, he did, he did,
For he designed the first d— cam
Although it wasn't worth a d—.,
Erin go Bragh, Hurrah for the engineer!
Erin go Bragh, Hurrah for the engineer!

IV.
St. Patrick was an engineer, he was, he was,
St. Patrick was an engineer, he was, he was,
For he invented the monkey wrench
That puts our rivals on the fence,
Erin go Bragh, Hurrah for the engineer!
Erin go Bragh, Hurrah for the engineer!

V.
He's a better man than Jacky P., he is, he is,
He's a better man than Jacky P., he is, he is,
He's a better man than Jacky P.
Although he has old Wischy treed,
Erin go Bragh, Hurrah for the engineer!
Erin go Bragh, Hurrah for the engineer!

VI.
Every year we celebrate, we do, we do,
Every year we celebrate, we do, we do,
Although St. Patrick never drank,
Each engineer will fill his tank,
Erin go Bragh, Hurrah for the engineer!
Erin go Bragh, Hurrah for the engineer!

VII.
When old St. Patrick went to Hell, he did, he did,
When old St. Patrick went to Hell, he did, he did,
He grabbed the Devil by the neck
And gave nine rahs for old Rose Tech,
Erin go Bragh, Hurrah for the engineer!
Erin go Bragh, Hurrah for the engineer!

IN MEMORIAM.

(By the Juniors.)

Oh, Epler, we shall miss you.
We shall miss you good and hard.
Your departure's left us saddened, and our hearts are torn and scarred.
No more we'll hear that silver tongue, upraised in speech so high,
With straight truth, and with fancy truth, and plain, unvarnished lie.
Old man, this is not kidding, for when Wicky calls the roll,
We shall miss your bloomin' comment from the bottom of our soul.

The non-chemists take a solid stand for preparedness. They desire the student council to appropriate enough money for oxygen helmets to combat the poisonous gas of the chem lab.

Prof.—"What lessons do we learn from the attack on the Dardanelles?"
Student—"That a strait beats three kings."

Dailey (In applied Mechanics)—"Wouldn't that make a difference in the reasonability of the answer?"
THE ROSE TECHNIC.

BANNING THE KISS.

On the basis of a Huntington, W. Va., dispatch, describing Dr. E. W. Grover’s recommendation of the “pat-pat” as a substitute for the unhygienic kiss, Puck submits a few modifications of current literature to suit, as follows:

He planted a passionate pat-pat upon her upturned cheek . . . .

Gwendolyn stood demurely under the mistletoe, and in another instant Clarence had deftly pat-patted her.

“How dare you pat-pat me, sir!” she cried.

“It is useless for you to struggle, my proud beauty,” he hissed.

Seizing her roughly, Dalton pushed the glorious head back, back, BACK, and leered into the frightened eyes.

“I am going to pat-pat you; do you hear, girl? To pat-pat you!” he cried . . . .

“And now, gentlemen,” said Terrance, our guide, “would any o’ yez bike to pat-pat the Blarney Stone?”

Visitor—“It’s a terrible war, this, young man—a terrible war.”

Mike (badly wounded)—“Tis that, sor—a terrible warr. But tis better than no warr at all.”—Punch.

Y. M.—“The Bible tells us we should love our neighbors.”

C. A.—“Yes, but when the Bible was written neighbors didn’t live so close together.”

Prof. Wickersham—No, I do not believe in luxuries. I’m with Cato on that point.

Thomas—Cato’s dead, ‘Fesser.

“How have you heard the hydroxy quartette? Punk! It’s all base.”—Ex.

Student tempering tool steel for Nick, brings piece out white hot.

Nick—“What the Sam Hill’s the matter with you, huh? Didn’t I tell you to get that cherry red, look? Didn’t ye ever see any cherries?”

Student—“Nope.”

Nick (furious)—“What’s the matter, was ye raised on a boat?”

The outlook for the Junior class is very good this year. A loss of 8% in the class was realized by the failure of Mills and Rea to re-enter school, but as a life saver, 4% of the loss was recovered when Ivan Miller, a prodigal chemist returned from the palatial laboratories of Wisconsin to the small, but efficient lab. of R. P. I.

MARRIED MEN, NOTICE.

“And when you eloped with the girl,” asked a friend, “did her father follow you?”

“Did he?” said the young man. “Rather! He’s living with us yet.”—London Opinion.

Speaking in technical terms, this is the season of the year when the B. T. U.’s go south and the B. V. D.’s go to the attic.

First Suburbanite—Did your new house cost more than you thought it would?

Second Suburbanite—Yes, more than I thought it would; but I thought it would.—Harper’s Weekly.

Hokus—“Flubdub seems to have a wonderful opinion of his knowledge.”

Pokus—“I should say he has. Why I have actually heard him attempt to argue with his son, who is in his Freshman year at college.”—Birmingham Age-Herald.

COLLEGE NOTES

The authorities at Vanderbilt have decided to require freshmen to room on the campus.

Policy and tact are just as essential to success in engineering as are ability, energy and integrity. By means of the three last attributes one is enabled to do his work thoroughly and well, but it takes the two former to enable him to secure it.—Waddell.
IT IS THE LITTLE THINGS.

It is the small details which go toward making perfection; and this last is no small thing. An artist said this when asked why he was taking such care in the representation of a familiar object forming but a minor portion of the work under his hand. What he replied is a truism, something we are inclined to admit in the abstract and prone to forget in the concrete. Perfection, one-hundred per cent efficiency, is the unattainable; yet that should not and does not usually prevent striving for that goal. But what is it that stands in the way, barring the attainment of perfection? Just a little thing, the small fraction of that last one per cent between the attainable ninety-nine and the unattainable one-hundred. Small and insignificant in themselves, those figures that represent the gap are the wondrous monument that marks the progress of the world, of science, of engineering, of chemistry. They are the fruit of the toil and the study of the ages. Looking back upon the methods of a few years ago with the searchlight of today, it is difficult to remember that, in their time, those methods formed the apex, that those who strove to surpass them were pioneering in the same way as those who now strive to pass the mark.

Today, as yesterday, all of the works of the world are but aggregations of the small details, their components; and none of them is without significance. And as the great work stands as the monument of its builder, so does each of its components. Each small detail as it lacks perfection contributes to the imperfection of the aggregate, and still more will it detract if, inherently imperfect, its functions have not been properly coordinated with the other components. Just as the weakest link governs the strength of the chain, so is the validity of any structure dependent upon its weakest component. In itself of little account and of small moment, when located at a strategic center it becomes the keystone of the arch. If it fails, then the deluge and the storm, the wreck; and then, sometimes, rebuilding.

All the lessons of the ages are bound up in a few words, easy to remember, easy to forget. But to those who can read their story it is written in letters of flame, “Forget you not of the details, nor of the end thou wouldst attain.”—Power.

CHANGES IN DETAILS OF GAS-FILLED LAMPS.

Manufacturers of gas-filled tungsten-filament lamps for multiple circuits have announced the adoption of a new standard of construction expected to eliminate very largely certain defects which developed in the earlier types of these lamps.

Perhaps the most important change consists of the adoption of a bulb which incorporates the good features of both the round and straight-side types used heretofore, together with long narrow necks inclosed by mica disks, thereby keeping the upper and base portions of the lamp relatively cool.

The multiple gas-filled lamps now on the
market are of the 100, 200, 300, 400, 500, 750 and 1000-watt sizes in the standard voltage range, 105 volts to 125 volts. In each case the dimensions of the new standard line of lamps are the same as, or slightly smaller than, those used heretofore, and therefore all of the fixtures and equipment now used with these lamps can be used without change with the lamps of the new bulb designs.

The 300-watt lamp will hereafter be regularly made with the “Mogul” screw base. The underwriters have recommended that the medium-screw socket should not be used for lamps above 200 watts. This change of lamp construction will assist in putting the new ruling into effect. The light center length of the 300-watt lamp has been made the same as that of the 400-watt and 500-watt sizes, so that one type of fixtures can be used with all three sizes. The 750-watt and 1000-watt lamps also have the same physical dimensions, which permits one style of fixture to accommodate either.

Perhaps the most important feature in connection with the new lines of lamps is that lamps of 200 watts or over are designed to operate only in a vertical position, tip downward. This construction permits a material improvement in the quality of the lamp over what it would be possible to attain if a design were to be attempted which would permit them to be operated in any position.

One characteristic of the multiple gas-filled lamp of 200 watts and above, as at present constructed, is that it will operate most satisfactorily in a vertical, tip-downward position, but satisfactory operation can be expected of these lamps when removed from the vertical by not more than 25 deg. when used in a tip-downward position. Lamps for tip-upward use are being built of special design by the manufacturers.

Particular attention is being devoted to the photometering and rating of these lamps by the manufacturers, who are using as a basis of design data based on specific luminous output and comparative filament temperatures. Whether or not the mean horizontal candlepower rating now used will prove sufficiently indicative of the luminous output of such lamps to warrant its continued use, or whether the mean spherical basis of rating will be employed, is still doubtful.—Electrical World.

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