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Rose Technic Staff
*Rose-Hulman Institute of Technology*


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# THE TECHNIC



TERMS.

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THE rushing season being over, we now have an opportunity of stepping back and viewing the wreckage. The recent examinations will certainly show a considerable amount of debris due at least partially to this cause. Anybody at all familiar with the undergraduate body can not fail to see a number of other extremely unsatisfactory results, which inevitably must have a demoralizing effect on the general spirit, the binding effect of which should be the chief advantage of a small college. We simply can not afford to go through another six-weeks running fight like the last. We have seven fraternities and could support three comfortably. This makes the situation a difficult one at best, and the Inter-fraternity Board should begin at once to consider the best way of handling the problem, always remembering that the good of the school is the first and most important thing to be considered in every question. If anyone can find a single harmless effect of the last rushing season on a single branch of student activities that suffered no unfavorable effects, we should certainly be delighted to hear of it.

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WITH the enormous growth in number and size of industries requiring a cheap and convenient fuel, the gas producer is constantly becoming a greater and greater factor in widely varied industrial activities. Recognizing this fact, THE TECHNIC presents this month an article pertaining to this important source of energy. This paper was prepared for us at our request by the Chapman Engineering Co., and is descriptive of their own particular type of producer. It will, however, be found to contain a number of valuable hints on general producer practice.

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WE were very much pleased at receiving the extremely forceful letter on the athletic situation, which we are publishing in the Rose Leaves section. Being entirely a personal opinion, exceptions and objections will of course be raised to many of the points

brought forth therein. Will someone kindly write us an answer to or a confirmation of Mr. Leitch's opinions?

While we are considering the subject, the football team should receive a little more credit than might be given them, if only the number of games won is considered. The Notre Dame game was a beautiful example of a team, hopelessly outweighed and outclassed but still maintaining a magnificent uphill fight till the last whistle blew. Incidentally that same fight has been held to have been chiefly responsible for many of our subsequent misfortunes. The De Pauw game also gave occasion for some of the prettiest and most aggressive football ever put up by a Rose team. Truly they have put up some rank exhibitions at times, but a man deserves an immense amount of credit for simply coming out for the team and staying out, with conditions as they are and must be in a technical school like Rose.

We hesitate to express the opinion, but it almost seems at times that Inter-collegiate athletics is not worth the time and expense devoted to it here at Rose. The number of men physically benefited is absolutely negligible, and the physical welfare of the majority is not even thought of. As for any very great amount of enthusiasm over athletics at present, it really seems that we are too busy with other things to give the matter much consideration .

FOR unparalleled vandalism the recent actions of the misguided youths who disfigured the buildings and gates of the Institute with Junior numerals and various other artistic efforts, almost approach the limit. This misdemeanor can scarcely be credited to the Junior class, although until the culprits are brought to light, there must be a shade of suspicion that it was done by one or two of that gang in a sort of unofficial, sub-rosa manner.

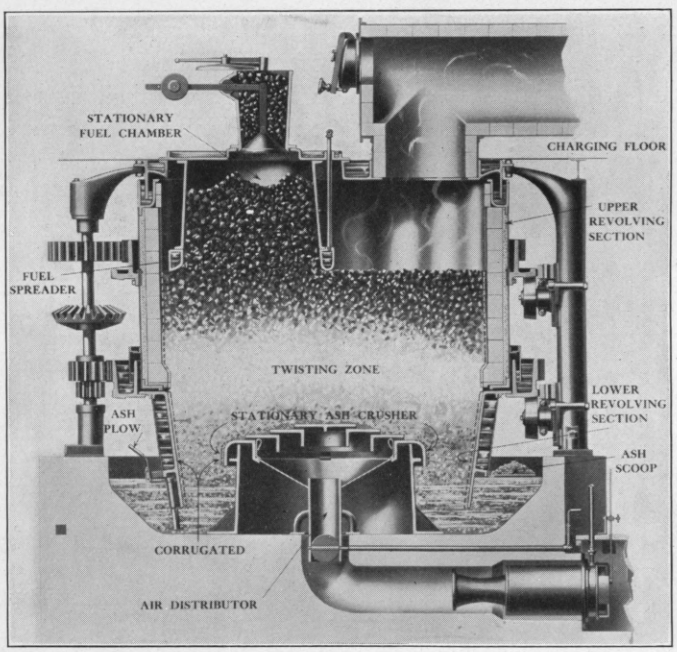
The handsome memorial in the shape of an electric clock with bells to ring at the end of each hour, has served to modify to a certain extent the bad impression produced by the Juniors because of their lack of class and school spirit. Nevertheless they can scarcely hope to be forgiven for breaking one of the most religiously observed customs of the Institute, by failing to hold any celebration, even of the mildest sort, on Halloween. Especially lamentable, is the omission of the Junior Banquet, always naturally the best banquet of the four years, for it is in the Junior year that all the ties of college loyalty and friendship are and should be strongest, and most binding. It is such customs as the Halloween Banquet that make school spirit, and we can not afford to lose any of that highly-prized and much talked-of article here at Rose. To have marred the classic beauty of the Institute is a forgiveable sin, but to have broken one of its most sacred traditions is one that time can never efface.

# Chapman Rotary Gas Producer

By Z. E. Taylor

THE Chapman Engineering Company, Mt. Vernon, Ohio, have recently placed on the market a radically new type of Gas Producer. This machine is manufactured by The C. & G. Cooper Company, of Mt. Vernon, Ohio, who are also largely interested in the Chapman Engineering Company.

The Chapman Rotary Gas Producer, as shown in the accompanying illustration, performs three distinct operations, one for each of the three steps necessary to the process of making producer gas, viz:




1. Mechanical feeding and spreading the fuel.
2. Mechanical agitation of the entire fire bed.
3. Mechanical removal of the ash.

These in brief are the three fundamental ideas around which this producer is built Earlier types of mechanical producers have partially performed some of these functions, but none has achieved the complete mechanical control of all three of the necessary steps.

The first unique feature of this Producer is that its "mechanical" feed has no mechanical parts. Another feature is that fine and coarse coal are handled simultaneously without separating the coarse from the fine. Heretofore in mechanical feeds a spout or bell has been resorted to, with the result that the fine fuel drizzled off from the end of the spout into the center of the producer, and the coarse fuel bounded from the spout with sufficient force to carry it to the walls. This invariably resulted in a separation of the fine from the coarse coal in the fire bed, very much to the detriment of the operation of the producer. With the Chapman feed this separation is obviosuly made impossible.

The second distinctive feature of this machine is the means used for agitating the fire bed. Some years ago the Chapman Company discovered that the best method of agitating a gas producer was to revolve one-half of the fire bed over the other, thus setting up a twisting and shearing action throughout the entire fire bed. The producer is therefore divided horizontally through the hot zone into an upper and lower section, and the two sections are made to revolve in the same direction, but at different speeds.

Each section of the wall carries with it that portion of the fuel bed which it surrounds. Thus the maximum amount of agitation is produced through the hot zone where it is most required. The unique feature of this second step in the process is that adequate agitation is obtained without recourse to an agitating member.

The chief difficulty in manufacturing producer gas is the prevention of clinkers. Clinkers are caused by excessively hot spots in the fire bed. These hot spots are caused by:

Uneven spreading of the coal.

Uneven agitation of the fire bed.

Uneven distribution of the air blast.

Uneven removal of the ashes.

Uneven conditions in a producer make blow-holes, "chimneys" or "pipes" in the fire bed. If left alone these holes become rapidly larger, and the temperature about them increases until the fusing point of the ash is reached. Clinkers then start to form about each of these hot spots, and when once formed, it is a matter of considerable difficulty to remove them. If the excessively hot spots are avoided and the uneven condition prevented, there will be no clinkers.

In the Chapman producer the twisting of the upper half of the fire bed over the lower shears off the holes as fast as they tend to form. This action, together with the fuel spreader and the continuous ash removal, effectually prevents the formation of clinkers. This freedom from blow holes in the Chapman Producer is evidenced in the unusually low temperature of the gas (about 1200 degrees F.) and also in the lack of soot.

The last step in the process of making producer gas, that of removing the ash, is accomplished in this producer in an equally novel manner. The ashes are first ground between the sides of the stationary corrugated air box or "ash crusher" and the revolving corrugated wall of the lower section. In mechanical producers, the crushing of the ashes is a very necessary preliminary to their removal, as otherwise an occasional large chunk would block the operation. After the ashes have been crushed they are forced up to the top of the ash pan by three adjustable ash plows. These three ash plows are kept continually in operation, and are easily adjusted when occasion requires, which is not often.

As fast as the ashes are lifted to the surface of the water in the ash pan, they are automatically scooped up and carried to the required point for automatic discharge. The fact that the ashes in being removed are removed upward instead of downward makes a saving of several feet in the height required for the gas house and foundation. There is little or no advantage in removing the ashes mechanically if they cannot be removed continuously. Heretofore all mechanical ash removing devices have been intermittent, operating for possibly an hour once or twice in twenty-four hours. This invariably resulted in a badly disorganized fuel bed, requiring several hours to rectify. The ash removing device in the Chapman producer is the first to fill this important requirement of being continuous.

As a result of the joint action of the automatic fuel spreader, the twisting of the fire bed and the continuous removal of the ash, this Producer may be made to gasify a ton of coal an hour—at least twice the capacity of the ordinary hand operated producer, and at the same time the quality of the gas is greatly improved and more uniform.

The details of this machine have been worked out with unusual care; no expense seems to have been spared, and the result resembles Corliss Engine practice, rather than gas producer construction. For example, the following is rather unique construction for a gas producer:

The supporting rollers run on high carbon steel pins, and are provided with brass bushings. These rollers are cast in a chill and ground. Separate rollers are used to take the side-thrust, all rollers are mounted in pairs set in equalizing yokes; all bearings are provided with large oil wells filled with waste after the manner of railroad cars. The faster gears run in oil. Steel castings are used extensively both in the gears and throughout the balance of the construction.

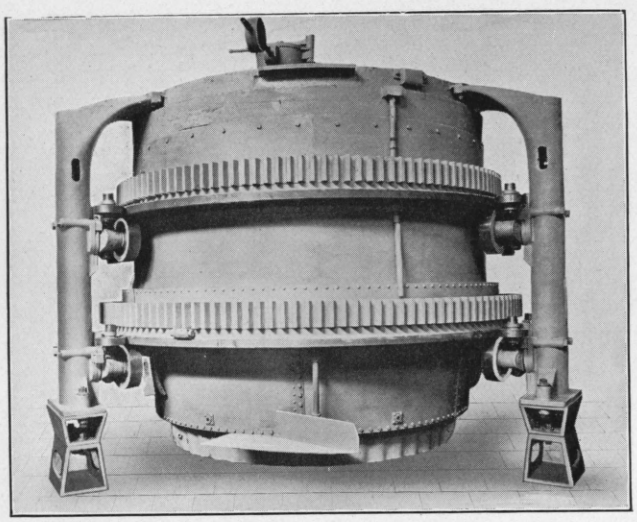
Six years of continuous effort were put upon this Producer before it was placed upon the market.

A six-day test recently made on a 10′ Chapman Producer using Pittsburg coal showed an average gasification of 1946 lbs. per hour. This test was made by nine engineers working eight-hour shifts. While working at this rapid rate of gasification continuous samples were taken, each one running for an hour. The following tabulation gives the averages of these samples grouped into 12-hour periods for the six days of the test:

| Date | Temp. F | $CO_2$ | $C_2H_4$ | CO | $CH_4$ | $H_2$ | Total Combustible |
|---|---|---|---|---|---|---|---|
| 12-30-12 PM | 1375 | 6.03 | .4 | 24.7 | 1.71 | 17.5 | 44.31 |
| 12-31-12 AM | 1305 | 7.04 | .55 | 23.45 | 2.5 | 14.44 | 40.94 |
| 12-31-12 PM | 1365 | 5.92 | .61 | 24.6 | 2.67 | 14.4 | 42.28 |
| 1 - 1-13 AM | 1401 | 5.74 | .5 | 24.53 | 2.74 | 13.74 | 41.51 |
| 1 - 1-13 PM | 1450 | 6.04 | .65 | 24.63 | 2.58 | 12.95 | 40.81 |
| 1 - 2-13 AM | 1360 | 6.06 | .6 | 24.1 | 2.93 | 14.41 | 42.04 |
| 1 - 2-13 PM | 1394 | 5.95 | .7 | 24.07 | 3.25 | 13.08 | 41.10 |
| 1 - 3-13 AM | 1372 | 5.76 | .62 | 24.53 | 2.35 | 14.66 | 42.16 |
| 1 - 3-13 PM | 1367 | 5.63 | .6 | 24.77 | 3.25 | 14.82 | 43.44 |
| 1 - 4-13 AM | 1358 | 5.51 | .59 | 24.98 | 3.79 | 14.54 | 43.90 |
| 1 - 4-13 | 1438 | 5.58 | .6 | 24.2 | 3.9 | 12.9 | 40.60 |
| Average: | 1381 | 6.02 | .58 | 24.36 | 2.65 | 14.24 | 42.09 |

B. T. U.—156.8

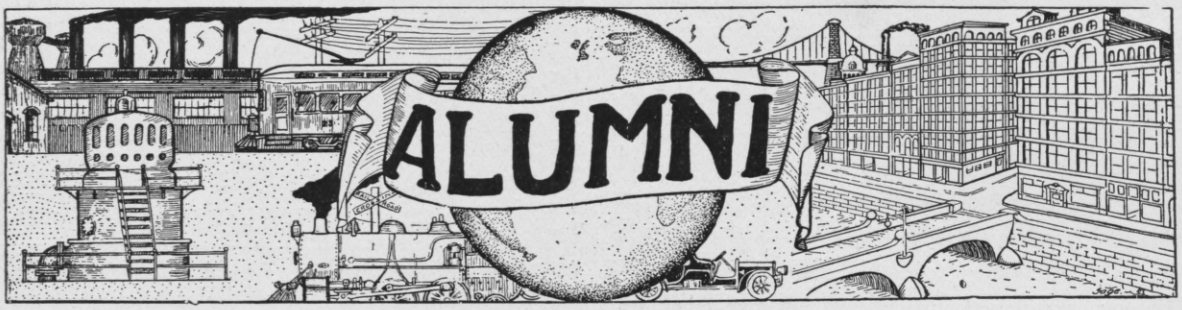
It will be seen that in every case the total combustible exceeds the guarantee, which was 40%. A test of about the same time at one of the largest glass works in the country gave an average for the four days of the test, as follows:



| $CO_2$ | CO | $CH_4$ | $H_2$ | Total Combustible |
|---|---|---|---|---|
| 5.8 | 25.9 | 3.4 | 16.3 | 45.6 |

This test was with a coal which ordinarily was very difficult to gasify in hand operated producers.

The sale of these Producers, as well as the results obtained from them, have been phenominal. They are now in operation in large numbers on open hearth, soaking pit, annealing furnace, heating furnace, glass melting, brick and tile burning, ore roasting, cement burning, and many other classes of work.




[Most upper-classmen will remember L. Wallace Lewis, '13, and will be pleased to hear of his success in the electrical-engineering department on the Panama Canal. It is always a pleasure to hear from a recent graduate, one of the old gang as it were, and this is especially so when he writes in such an extremely interesting manner as Mr. Lewis does in the following on a matter occupying as conspicuous a place in the public eye as the Panama Canal now does.]

CULEBRA, CANAL ZONE, Oct. 14, 1914.

TECHS AND FRESHMEN:—It surely would be worth a peso, to me, right now, to see a green cap bobbing across the campus on top of a lightly tripping Freshman, but that pleasure has been denied me for awhile, so I sit here and pass the time away listening to the purring (?) and gentle throbbing (?) of the dredges, while they work at the toe of Cucaracha Slide, which, by the way, isn't the name of a new dance! This so-called throbbing and purring rises in a very curious form—some "mud-slinger," an operator of a dipper dredge, gets hold of a good size rock, that won't fall through the bottom of his dipper. He methodically jerks the dipper up and down, in his attempt to force the rock through, and when this fails, he places a speciman of "Nobel's 1866" invention, 60%, on the rock, "toot, toot, toot, etc., to-o-o-ots" his whistle, and everybody scrambles out of the immediate vicinity of the aforesaid 60%. In a few seconds, there's a flash and a roar that rocks the houses, and everybody sits back and—waits for the next one! It's asking one's imagination to exceed the elastic limit, if he is asked to imagine one of these "Dobie" shots, going off at his feet every 5 minutes, but strange as it may seem, we get used to it, and the "off-duty" shifts on the boats sleep through it all!

This slide together with its smaller brothers, Hagan and Culebra slides, has caused more worry and anxiety than any other single mishap in connection with the construction of the Canal. Water was turned into Culebra Cut on Oct. 10, 1913, and only a few days before this date, when the dike was to be blown up, a few million cubic yards of spoil went sliding into the Cut off of one side of Gold Hill. This hill lies at the point where the Continental Divide crosses the Canal and its summit lies 515 feet above the normal surface of the Canal. Since that time, dredges have been clearing away the obstruction, and only a couple of months ago were boats allowed to pass.

Three types of dredges are working on the Slide,—dipper dredges, that work like steam shovels, ladder dredges, that carry an endless chain of buckets—the bottom buckets dig at the bottom of the Canal, and the spoil is carried to a turret, where it is dumped into a chute; suction dredges, have a long snout which is placed against the obstruction, and the spoil is sucked into the engine room, where large centrifugal pumps force it through a pipe line, where it empties into low places—the mud and

rock settles and the water drains off. This is a "Hydraulic Fill"; the town of Balboa is built on such a fill.

The spoil from dipper and ladder dredges is placed in barges, which are towed, by tugs, out into Gatum Lake and emptied. At the back base of the slide, ashore, powerful jets of water play on the slide, and this spoil is conveyed to the low-lands, in troughs. A few more weeks will see the last of "Cucarach," and traffic will begin in earnest.

The number of boats going through now, averages 4 per day, and the greatest capacity of the Canal is 48 per day. As soon as the Slides are cleaned up and the Europeans stop ventilating each other this 4 will soon grow to 48. The net profit up to Oct. 1, was about $350,000. The toll fixed, per net registered ton, is $1.20, and a net registered ton is 100 cu. ft. of space. The average ship will pay from $5,000 to $10,000 for its passage, which seems high, but when one considers the time and cost of maintenance saved, in this passage, the rate becomes a very reasonable one. The average cost of operation, on a boat, is 10 cents per net registered ton per day. A 10,000 ton boat then pays $1,000 per day for operation alone; if a voyage from Chile to Europe, then, is shortened 20 days, the owner saves $20,000; he pays $12,000 for tolls, saves enough in coal to pay that toll, and can utilize the coal bunker space saved to carry cargo. Uncle Sam is satisfied and surely the owner ought to be! I suppose all of this can be learned from the newspapers, but I don't think the newspapers can tell very much about the life down here.

The first thing one does, after he lands, is to attempt to get his directions straight. The Canal, instead of running from the Atlantic to the Pacific, east to west, runs from north-west to south-east. Balboa, then, on the Pacific side, lies 23 miles east of Cristobal, which is on the Atlantic side, the sun rises out of the Pacific ocean, South America lies on the north-east side of the Canal, and—Freshmen always will be incredulous; get a map, son, get a map.

The next thing one does, is hunt a Gents' Furnishing store, because he wore his last clean shirt during the last three days out, and by this time it isn't very clean. He is directed to the commissary, which is one of Uncle Sam's department stores. There is one operated in each town, for employees only, and, say!—if there's anything you want that they haven't in stock, why—well, it hasn't been invented yet, tha'sall. They carry about 5,000 articles in stock and if you can't find something that will "do just as well," you surely are in need of your particular article. You never hear the clink of the coin of the realm here; everything is sold for coupons. Books worth $5 or $15 may either be boughten or deducted from your accrued pay, depending upon your pecuniary circumstances. However, one cannot buy a book unless he shows his "brass check." Every employee is given a brass check bearing a number, and when he buys a book, he shows his brass check, when he cashes his pay check he shows his brass check, etc. The values of the coupons are 1c, 2c, 5c, 10c and 25c.

A Panama Canal hotel is operated in each town, where an employee can obtain a meal for a 30c coupon from a "hotel book." These books contain fifty 30c coupons, and are obtained in the same manner as a commissary book. A "towerist" pays 50c for his meal—graft by the employee? Sure, and some of them do it, too!

The same privilege holds for mileage. The employee rides for 2½c per mile, on the Panama Railroad, while all others pay 5c per mile. Besides the mileage privilege, each employee is given a 24-trip pass book each year; this allows him one round trip each month, to any stop on the line, and, of course, on these trips, we always ride the limit, from Panama to Colon, or vice-versa, which is 49 miles, because it costs us nothing. That's as far as we can go unless we jump off into an ocean. Also, when a man lives in one town, and works in another, he is given a pass to and from work; every day, about a hundred of us have to go from Cule-

bra to Balboa Heights, a distance of 12 miles.

The climate can be described in a very few words—it either rains or it doesn't. From April to December it rains every day and if one carries a rain-coat or an umbrella, and it rains, he's lucky, and if it doesn't rain—he's lucky, but if he forgets either, and it rains—! Only a few days ago 4.41 inches of water fell in one hour, and the record is a little better than 6 inches in one hour, so if a fellow forgets either his raincoat or umbrella, he'd better get in the habit of wearing a bathing suit instead of underclothes. During the rainy season, the vegetation thrives; everything appears so fresh and green that a hike out along a jungle trail is something to be remembered. During the other four months of the year it never rains, and the vegetation dries up and dies, and maybe, at noon time, it doesn't get hot! The nights, during the dry season, are beautiful, and the moonlight is so brilliant that one can easily read a newspaper by its illumination. This is because the air is so clear and free of moisture. The nights are cool the year round, and its really uncomfortable to attempt to sleep without a blanket. One seems to never get enough sleep in this climate—at noon, because of the heat, we get a two hour siesta and nearly everybody sleeps.

The work is rapidly nearing completion and on April 1, 1914, when the Panama Canal organization superseded the Isthmian Canal Commission, the permanent operating and maintenance organization was formed, as far as was possible to do so, and the remainder of the force was released. This reduction is still taking place and it will be a few months yet before the organization is reduced to a strictly operating and maintenance basis. The field forces have assumed nearly a permanent status, because of the completion of the Locks, excavation, permanent buildings, etc., although a 1,000 ft. drydock and a few 1,000 ft. piers still remain to be built.

The office forces are just beginning to simmer down—of a total of 60 draftsmen, only about 50 per cent of them will be here by Jan. 1, and the clerical forces are to be reduced in about the same ratio of these 60 draftsmen. Two of us work for the Electrical Division, and we're kept moving every minute; our work covers everything pertaining to interior and exterior illumination, the design of 4 duct lines and the layout of cables, therein; the motorization, and all apparatus connected thereto, of 28 shop buildings, various substations, compressor plates, etc. The hydro-electric station has three 2,000 K. W. vertical turbine units, and provision has been made for the addition of three similar units. These operate under a head of 85 to 87 ft. and furnish energy to four substations—one at Cristobal for Cristobal-Colon town service, coaling plant, dry-dock, etc.; one at Gatun for the Gatun Locks; one at Miraflores, for the Miraflores Locks and Pedro Miguel Locks; one at Balboa, for Balboa-Ancon town service, shops, dry-dock, Radio Station and Panama Railroad wharf, where there are seven electric cargo handling cranes.

The energy is transmitted over three No. 2 stranded copper cables, strung on "track-span" transmission towers; there are two lines—one for spare—and the towers were designed with the future electrification of the railroad in view. This, however, will only be needed for the rapid transportation of troops.

We now have a fine large office building to work in. It is a 4-story steel-concrete structure, situated on a high hill that overlooks the Pacific entrance to the Canal from the open sea to the Miraflores Locks, which are situated 8½ miles inland. From the window, beside my table, I can see Taboga very distinctly. This island is Rex Beach's "Taboga" that he has written of in the "Ne'er-do-well." The island is approximately 2 miles in diameter, and is 12 miles out in the bay, and the coast defense guns, on the mainland, drop shells one mile beyond it.

The building houses all of the clerical and designing forces of the Canal with the exception

of a few small field forces. A lunch counter is accessible in the basement, so that one doesn't have to climb the hill more than once a day unless he simply delights in doing so. After lunch, we play cards, sleep, or go to the library, which is on the third floor. The latter is very popular with the bachelors, because the librarian is a young graduate of Bryn Mawr. It stands to reason that they don't flock up there to read technical magazines.

Outside of working hours there are any number of ways of amusing oneself. There is the Y. M. C. A. club house where pool, billiards, and bowling may be enjoyed, besides a reading room where all of the newspapers and current magazines may be found. Here, also, moving pictures are shown once a week for 25c per show.

The Panama beach is a popular place, provided one doesn't mind rough water, occasionally. During just one week each year, there's an abnormal fluctuation of the tide, and that happened this year only a couple of weeks ago. I happened to be out there during that time and Mr. H. Rowe, Supt., of the Electrical Division, was also out for a swim. A huge roller caught him amidship, and when the water had drained out of his mouth and nose and he had dug the sand out of his ears, he asked me if I "saw that go up." I supposed he meant his feet instead of the wave, because he rode clean to the top of the beach standing on his head!

The bull-ring is another popular pleasure resort for Sunday afternoons! At first they used to have some interesting fights, but when they began to fight bulls that any farmer boy in the states could chase all over the country with a stick, the Americans began to grow disgusted, and interest in bull-fights is waning. There aren't enough "Spiggoty" dollars, alone, to make that form of amusement a success, ("Spiggoty" comes from the native "no 'spiggoty' Engleese," and everything that pertains to the Panamanian, in the American tongue and mind, is "spig" or "spiggoty." Their dollar is the "peso" or "Balboa,' and is equal to 50c U. S. currency. We deal then in gold, civilized money, or silver, spig currency).

Every Sunday morning the Panama Lottery is played off. Ten hollow spheres are placed in a squirrel cage contraption and rapidly revolved for a few minutes. A small girl then, takes out a sphere and hands it to the clerk, who opens it, and takes out a piece of paper on which a number is printed. This operation is repeated four times and the four digits constitute the winning number. The spheres are numbered from 0 to 9 and there are four identical sets. The ticket sellers have tickets of 5 pieces each., i. e., five tickets bearing the same number and a purchaser may take only one piece if he cares to, or all of them. The silver tickets sell for one Balboa each, and the grand prize is $7,500 gold. If one then holds one piece of the winning ticket he gets $1,500; if he holds the whole ticket he gets $7,500. Once each month, the tickets sell for one dollar, gold, each and the grand prize then becomes $15,000 gold. If one holds one ticket and the end number wins he doubles his money, if the three end numbers turn up he increases his investment by 100%, etc. These are called "approximations" about all that half of the "culled gehn-men" live for is to play the lottery, and a certain drawing will furnish a topic for months of gesticulations and controversy. The lottery concession is sold to an individual by the Panamanian government, and the present one holds until 1918.

There are any number of side trips that we may enjoy; the ruins of Old Panama are situated ten miles from Balboa, and are easily accessible by auto; the ruins of Fort San Lorenzo are at the mouth of the Chagres River, and may be reached by launch from Gatun. The surf bathing, at that place is unsurpassed, but rather dangerous, because of the under-tow. When I was down there last, my old school pilfering spirit popped out and I carried an old 16-pound iron cannon ball home under my

coat, and now that I have it, I haven't the slightest idea what I'm going to do with it.

Porto Bello is where the rock for the Atlantic break-water came from and is about two hours, by tug, down the coast. If one can ride parallel to the swell for two hours without getting *too* sick, he's rewarded by seeing some more interesting ruins. Porto Bello and Old Panama were destroyed about 1675 by the buccaneer Morgan and his stronghold was at San Lorenzo.

We occasionally organize trips to the Pearl Islands, to see the pearl fishers at work. It's great fun to dive and attempt to collect a basket of pearl oysters. The water is clear as crystal and the man down below, performs some queer antics for the benefit of those watching from above. Alligator hunting is a common pastime, and the jungles are alive with deer, jaguars, and tapir, and there are myriads of smaller game, such as, o'possums, squirrels, monkeys, etc.

Taken as a whole, it's a very enjoyable life, and the only drawback lies in the fact that we seldom hear real news from home. We hear of war and congress, but as for baseball, etc., we hear nothing. Which reminds me—enclosed please find one bone for this year's TECHNIC!! Guess I'll have to go to the States and rub off the rusty spots, in my head, which have accumulated during the last two years. I'll do that next May, and say!—I guess I won't see a *few* of those green caps!!

DUKE, '13.

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## ALUMNI NOTES.

R. A. Philip, '97, has been honored by being named as Associate Editor of the American Handbook for Electrical Engineers, recently published by John Wiley. Mr. Philip is chief electrical engineer for Stone and Webster, and is considered to be the foremost engineer in the country in his special line of work.

Watson J. Klinger paid the school a visit this month. Mr. Klinger is president of the Dayton View Machine Co., Dayton, Ohio, and while in school held a state championship in bicycle racing.

John T. Wilkin and family visited the Institute on the 11th. Mr. Wilkin knew the Mr. Lodi who was shot as a German spy in the Tower of London recently. At the international meeting of the Society of Mechanical Engineers, which met in Germany, in June, 1913, and which Mr. Wilkin attended, Mr. Lodi was a sort of guide and manager to the party, and made himself generally useful and agreeable.

The Louisville Rose Tech Club held the first of the year's informal dinner-meetings at the Henry Watterson, October 26th. News of the Institute was received in a news-letter from Doctor Mees.

After an apparently unsuccessful attempt at deciding the European war issues, the fight was brought nearer home, and the following officers were elected:

President.....A. G. Butler
Vice-President.....C. M. Struck
Secretary.....O. A. Ohmann

Roy W. Moore, '14, is with the Kansas City Terminal Ry. Co., Kansas City.

In December there will be a lecture on "Concrete Road Making," by the Atlas Portland Cement Co.

Born, to Mr. and Mrs. Earl D. Hay, a daughter, Flavia Valora, Oct. 26, 1914. Mr. and Mrs. Hay live at 36 Arlington Place, Oskosh, Wisconsin.

Born to Mr. and Mrs. James Andrew Shepard, of Deming, N. M., a son, James Russell Shepard, Oct. 21, 1914.

Harry R. Canfield, '06, who is now in London, will speak before the British Institute of Electrical Engineers.


## THE ATHLETIC SITUATION.

I AM certainly glad to have a chance to publicly express my opinions upon the football question. The suggestion in the last TECHNIC not to handle the matter with kid gloves is a fine one. It would be a shame to spoil the good gloves. I do not set forth the ideas to follow, as coming from an authority on the subject, by any means, but am merely availing myself of the opportunity thus offered. They can be taken for what they are worth.

To make a general statement, the fault can be laid at the management's door, without doubt. To begin with, the scheduling of games with the Yale class, especially at the start of the season, is in the nature of a double-cross to the team as well as the student body. There is absolutely no excuse for them other than the trip involved and a slight money gain, with emphasis on the "slight." The support, both in spirit and substance, of the student body is worth that little, isn't it? And can the management, reasonably or unreasonably, expect it when they consistently shoot the team to pieces by these games, so-called?

Every season there is considerable agitation and oratory on the part of the management to "stir-up" enthusiasm on the part of the student body. That isn't the way to stir it up. What inducement do they offer to bring it out? The spirit is still there fellows, but it smoulders and is almost dead for lack of results from the capital invested. Why don't you give us a fair chance to prove it? It is against human nature, unassisted, (now don't say "whadda yuh mean unassisted?") to shout and sing and be merry when you *know* you are outclassed.

To get down to facts, last season was the first for some time that the annual Vanderbilt fiesta (on their part) was not undertaken. What did the team do? I didn't hear any wailing about the lovely trip missed nor I couldn't see that we were worse off financially. The team got together and *fought* with what success you all know. Of course you can say, "We had some team." Sure we did, and we ought to have had one this season. It wasn't for lack of numbers as we had a much larger squad than usual. We filled your much advertised suits and it wasn't for lack of the Yale game as stumbling block. Well, why haven't we got a team? I admit that with a few exceptions the present team is green material and in the same breath I also say you can't expect, with fifteen or twenty minutes at the tackling dummy in a season, to turn out a bunch of men who hit hard and sure. A more pitiful exhibition of blocking, tackling and interference than that of the Earlham game would be hard to imagine unless you can remember as far back as the Franklin game. At that, the men are game and probably did the best they could.

"Hurry up" Yost said about three weeks ago, "Give me a team of blockers and tacklers and I'll beat any team of kickers and runners in the country." Maybe some of the rest of you saw the same remark. Also, I may say, he is regarded as some authority on football, too. No come back there. What have we in a team of

this type? And where are some plays beside the off-tackle, thru center, fake forward pass and a make-shift for the real article which in point of effectiveness is hard to separate from that word "fake." I heard numerous expressions of this last idea by old Alumni who saw both home games. *They* said, "When *we* were beaten by Earlham or Franklin, we thought it was time to quit! Never again!"

There it is again. A man comes out here and spends his good half dollar and goes away minus his half dollar plus an excusable grouch. What's the answer? I leave it to you. Now, exclusive of the student fund, to make athletics self-supporting, we must have lots of town people out. What are you going to give them for their money, the game or the grouch? When the Alumni with *their* Rose spirit knock it is time to look for faults some place beside the student spirit.

Another fault is the lack of home games, especially so this year. Of course they are expensive, but if we can't afford to have approximately half, at least, let's spend our football money on a more remunerative branch of athletics. And if DePauw wants to play us, bring them here. Why should we collect a bunch of rooters and chase them to Greencastle to spend their money with DePauw? Let them and every other team take their turn. Because they have sufficient monetary unit to offer as bait the tempting "bonus" is no reason why we should immediately fall for it. Do the right thing by the team and the rest of us.

In passing I might add that the ruling on time "lost" for athletics be religiously made up is a real handicap. In a school of this kind where our education is our stock in trade and where the more of it you get by just so much more are your chance furthered afterwards, we cannot afford to miss *much* of it, but it is hard to come out to athletic practice and be held for the time lost in shop and lab. where 5 o'clock is closing up. Personally, I don't feel like it and I know there are lots of others who are handicapped by this same condition.

I suppose I will be reminded that the above article is considerably "crabby" but I feel like I am entitled to it and if it has any effect toward remedying conditions as they are, I can stand the come-back which is probably due. Any how it has been a great relief to me and that's worth something. R. D. Leitch, '16.

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## STUDENT COUNCIL MEETING OF OCT. 19, 1914.

Special Meeting.

Roll call. Wallner and Stevens absent.

Reading of minutes of previous meeting omitted.

Moved by Anderson and seconded by Compton that provided seventy-five rooters signify their intention of accompanying the team to DePauw before Thursday noon fifty cents of each man's expenses be paid by the Student Council. (Carried).

Moved by Arnold and seconded by Hild that a committee be appointed to look after stationery and supplies for the Council. (Carried).

Committee—Hild, Weinhardt.

Moved by Smith and seconded by Compton that meeting be adjourned. (Carried.)

Meeting adjourned.

F. W. Hild, Rec. Sec'y.

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## FRATERNITY PLEDGES.

Alpha Tau Omega—Bake, Bergmann, Bright, Crapo, Hartaugh, Howard, Shorten, Woodling.

Sigma Nu—Scott G. Henry, Gibbs, Evans, Grafe, Harrison, Tilley, Schilt.

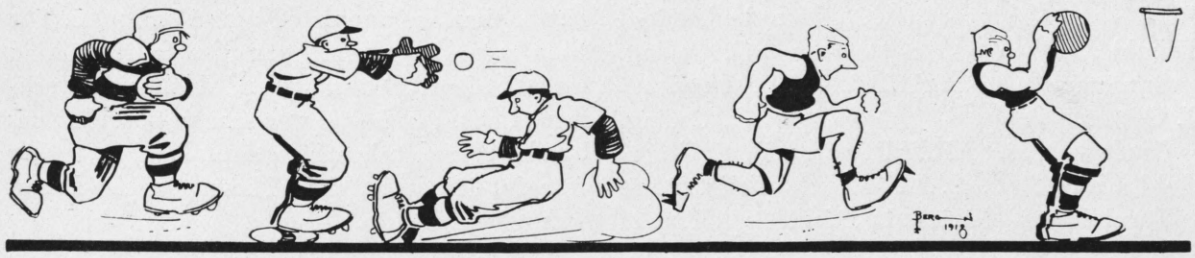
Theta Xi—Amour, Andrews.

Alpha Chi Sigma—O'Brien '16, H. Smith '17.

P. I. E. S.—Springer, Buck, Kalen, Johnson, Allen, Wyman '17, Pigg '16, Harbulak, Minnick, Williams '17.

M. E. P.—McElfresh, Williams, Robinson, Stoner, D. Henry, Schierling.

V. Q. V.—Heedwohl, Smith, Watson, McCoy, Furry, Lee.



# ATHLETICS

## ROSE-WABASH GAME.
## SATURDAY, Oct. 17.

IN spite of the fact that Joe Carter was able to participate in the Rose-Wabash game, the Engineers were but little benefited by his presence and were swept down to a 34-6 defeat at the hands of the speedy scarlet team on Ingall's field Saturday afternoon, Oct. 17.

The up-state men won the game on their superior speed, excellent line smashing, and clever interference. They swept the Rose warriors off their feet in the first quarter and, although the vanquished rallied and scored one touchdown, they could not stick with the pace, and were unable to do further damage, although they threatened the red and white goal several times.

The game was a contest in which straight football was used almost exclusively, although several forward passes were tried. Wabash made good use of the onside kick, which play, however, was seldom attempted.

Wabash worked strong in the last period, scoring two touchdowns, and it was only a matter of inches to the Rose chalk line when time was called.

### BACKFIELD WORKS WELL.

Pfohl, Rowe and Coffing exhibited high-class work for the Little Giants, although the whole backfield worked together well. Allen distinguished himself by romping forty yards for a touchdown after Pfohl had skirted the right end for about the same gain.

For Rose the gladiators who played a good game and fought hard in spite of the disheartening effect of the score were Sheldon, Buck, Trimble and Davis. Carter was unable to put forth his usual brilliant efforts on account of hsi injuries, but nevertheless he got in the clear several times and annexed the touchdown for the Tech men. Yatsko played a good defensive game.

Sheldon's defensive work was a feature of the game. His tackling was extremely sensational and time after time he broke up the Wabash plays before they were started.

Buck also played well. He showed his speed and made a large part of the Rose gains.

Davis played his usual consistent game. No gains were made through his position and he piled up the opposition for a loss many times.

The game was marred by much penalizing on both sides and much fumbling. The game in detail:

Lineup and summary:

| Rose 6. | | Wabash 34. |
|---|---|---|
| Stephens, Evans | | |
| Woodling | R.E | Showalter |
| Pirtle, Henry | R.G | Turner |
| Davis | R.T | Hurd |
| Cotton, Yatsko | C | Moore |
| W. Carter, | | |
| Woodward | L.G | Bacon |
| | | Michaels, |
| Sommers | L.T | Culp, Haley |
| | | Nicar, |

Sheldon .....L.E.....Blacker, Culp
Buck .....Q.B.....Mansfield, Pfohl
Trimble, G. Coffing,
Springer .....L.H.B..... Leavitt
J. Carter, G. Coffing,
Grafe .....R.H.B.....E. Coffing
Goldsmith .....F.B.....Jeffries, Rowe

Touchdowns—Carter, 1; Pfohl, 2; Allen, 1; Coffing, 1; and Rowe, 1.

Field goals—Coffing, 2; Rowe, 2.

Time of quarters—15 minutes.

Referee—Hadden, Michigan.

Umpire—Jameson, Purdue.

Head linesman—Feeny, Notre Dame.

Total—Rose, 6; Wabash, 34.

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## ROSE-DE PAUW GAME.

Oct. 24.

PLAYING a wonderful game for three quarters and showing class and speed that went beyond the wildest expectations, the "Fighting Engineers" displayed the best football seen on McKeen's field this year, in the De Pauw-Rose clash Saturday afternoon, Oct. 24. The final score was 20 to 0, the Methodists scoring all their points in the fourth quarter.

Every inch DePauw gained was earned and Rose smashed through the Black and Gold line in a way that put fear in the hearts of the De Pauw supporters time after time.

The score at the first of the fourth quarter stood 0 to 0, but Rose weakened in this period when, with Baxter out and Buck, the game little quarter, scarcely able to stand on his feet De-Pauw battered the bruised and bleeding Rose line, exhausted by the first three quarters of play, and sent Capt. Thomas catapulting across the final chalk mark.

By a sense of well worked play and considerable luck the Methodists followed the advantage and, after several Rose regulars were compelled to retire to the side lines, tallied two additional touchdowns.

A heated argument developed during the last half when the Rose officials including Coach Huebel, claimed the third quarter was running longer than the stipulated time 15 minutes. The Poly men also claimed that the fourth period lasted at least 20 minutes and during the argument Capt. Jap Davis was sent to the side lines by the referee when he complained, in rather forceful language, that Thomas of De-Pauw, was using his fists.

The members of the Rose team were considerably wrought up over the treatment received.

The stars for the winners were Anderson, Rowan, Pense and Woodruff. Rowan returned almost all of the punts while Pense was a consistent ground gainer. Anderson also got by for a good number of gains and Woodruff's tackling showed up well.

Capt. Thomas entered fresh in the third quarter and played well while he was in.

The Rose men who did exceptionally good work were Buck, Sheldon, Davis and Yatsko, although the whole team played together magnificantly and showed up well. Buck cannot be given too much credit for his playing, both on offense and defense, but the boys who pulled down the opposing runners were Davis and Yatsko. Riggs played a good game considering the fact that he is a new man, although he let a few plays get by him. Both ends showed speed in getting down under punts.

The game was exciting and interesting throughout. Rose worked a line shift for gains repeatedly while DePauw tried many forward passes but they failed to work.

The Methodists also attempted a triple pass behind the line, but this play lost more ground than it gained.

The game in detail:

Lineup and summary:

DePauw 20. Poly 0.

Woodruff .....L.E..... Sheldon
Northway .....L.T..... Yatsko
Smith, Cochran.....L.G....Carter, Sommers
Meredith .....C.....Cotten
Sefton .....R.G.....Davis, Smock

| | | |
|---|---|---|
| Sharpe | R.E | Riggs |
| Anderson, Thomas | Q.B | Buck |
| Pense, Harvey | R.H | Baxter, Springer |
| Rowan | L.H | Goldsmith |
| Ade | F.B | Trimble |

Touchdowns—Ade, Thomas. Goals kicked—Sharpe, Rowan, 2. Referee—Davis, Princeton. Umpire—Redden, Michigan. Head linesman—Ruele, Michigan. Time of quarters—15 minutes.

Score—Rose 0, DePauw 20.

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## ROSE-FRANKLIN.
Oct. 31.

ROSE football team lost its first home game of the season Saturday afternoon, Oct. 31, to Franklin by a score of 7 to 0. Just as was expected, the teams were evenly matched and the game was not won until the final whistle. Fumbles on the parts of the Rose men probably cost them the game. Franklin, with a series of line rushes and forward pases, managed to score in the first few minutes and at no other time was the ball in the Rose end of the field.

Six or seven times during the game Rose carried the ball to Franklin's five-yard line, only to lose it on a fumble. It looked as though the fighting Engineers lost their heads at the time when they were needed most. Cotten, the Rose center, made a wild pass in the last few minutes of play in the second quarter with the ball a foot and a half from the Franklin goal. In the last three quarters of the game the ball traveled from the center of the field to the Franklin five-yard line and back many times. Rose's line held like a stone wall at times, and then again it showed up weak.

The Franklin team had a little on the Engineers in weight and also seemed to be better organized. Springer and Sheldon played an excellent game for Rose, while the work of Buck, the Rose quarter back, was little short of sensational. His tackling and carrying the ball was a feature of the game. Hays, right half for Franklin, was the star for his team, making big gains whenever he was called upon. His dodging through the Rose line made many gains for Franklin. Franklin asserted that five of their regular team were out of the game on account of injuries, but Rose was also crippled without Captain Carter and Baxter. Trimble, left half for Rose, suffered a badly bruised leg muscle in the second quarter and Bright was sent in in his place.

Lineup.

| Rose 0. | | Franklin 7. |
|---|---|---|
| Sheldon | L.E | Craig |
| Yatsko | L.T | Bogard, Hamilton |
| W. Carter | L.G | Kirlin, Sunbaul |
| Cotten | C | Kincard |
| Henry, Pirtle, Woodward | R.G | Mullikin |
| Davis | R.T | Lowry |
| Riggs | R.E | Mize |
| Buck | Q.B | Clyver |
| Grafe, Springer | R.H | Hays |
| Trimble, Bright | L.H | Smith |
| Goldsmith | F.B | Vandivere |

Score: Rose, 0; Franklin, 7.

Touchdowns by Vandivere of Franklin. Goal kicked by Hays. Referee, Robinson of Indiana University. Umpire, Wann of Earlham University. Head linesman, McCarty of Indiana. Time of halves, 30 minutes.

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## ROSE-EARLHAM GAME, Nov. 7.

BY losing to Earlham College Saturday afternoon, Nov. 5, at the Rose campus by a score of 36 to 7 the Rose Poly team stepped into last position among the state teams. Although the Rose team played an exceptionally good game its line could not withstand the heavy attacks of the Earlham bunch.

Rose made its first and only score in the first few minutes of play. Captain Carter, who has been out of the game for several weeks with an injured arm, started the game at full-

back. Carter received Earlham's first kickoff and ran the length of the field for a touchdown, and then kicked goal. Joe suffered a wrenched shoulder in the middle of the first quarter and was taken out.

He was sent in in the fourth quarter with the ball on Earlham's 15-yard line, but his arm was again injured. Captain Carter was game and wanted to stay in, but Coach Huebel saw that he was not in fit condition, so he was replaced by Bright.

Rose showed poor form in tackling, allowing the Earlham men to wiggle out of their grips many times. With Captain Carter out of the game the Rose fighting spirit weakened and allowed the visitors several touchdowns in the last quarter.

Kingery played his first game of football at left half for Rose and distinguished himself by his line plunges and tackles. Goldsmith made his gains whenever called upon.

ROSE LINE WEAK.

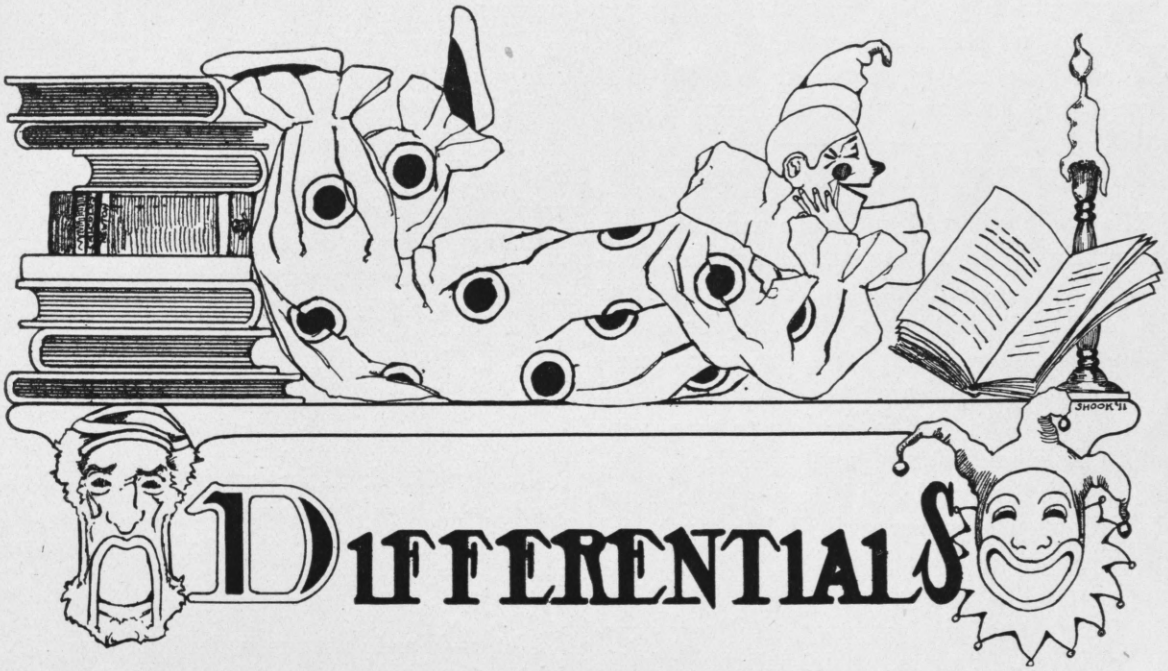
The Rose line was outweighed considerably, but fought hard at all times. Davis proved a tower of strength on his side of the line and also made a number of good tackles. Buck and Springer played their usual speedy game, making sensational tackles at the proper times. Time was taken out many times for injured Rose men.

Evans suffered a dislocated shoulder at the beginning of the second quarter, while Sheldon also had to be taken out with an injured knee. Rose had a number of substitutes in the game in the last quarter, which allowed Earlham to run up a large score. Spruce Logan and Bruner starred for the visiting team.

Lineup and summary:

| Earlham 26. | | Rose 7. |
|---|---|---|
| Bruner, Hutton | L.E | Sheldon, Springer, Wente. |
| Kelsey | L.T | Yatsko |
| Kinneman | L.G | Bill Carter, Henry |
| Morrish | C | Cotton |
| Calvert | R.G | Evans, Pirtle |
| Semler | R.T | Davis |
| Winslow | R.E | Riggs |
| Logan | Q.B | Buck |
| Spruce | L.H | Kingery |
| Thornton | R.H | Goldsmith |
| Bowman | F | Joe Carter, Bright Grafe. |

Touchdowns—Bond (2), Spruce, Logan, Carter. Kicked goals—Logan (2), Carter. Referee—Redden, Michigan. Umpire—Feeny, Notre Dame. Head linesman—Robinson, Indiana. Time of quarters—15 minutes.




The Differentials staff was indeed surprised to find contributions by several students in the TECHNIC box. Of those submitted, the following were chosen as the best:

### INTERROGATORY.

When you've nothing else to do, ask a question,
And monotony will never be your jinx.
Whether sane or simply foolish, ask a question,
No matter what the dear professor thinks.

—*Bundy.*

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### LOVE POEM.

When the sun in fiery splendor sets, I think, love,
When not mechanical, my thoughts are all of thee.
Why some girls are so fair and some are not, love,
Is a fact in nature that is hard to see.
Thy angel brow is white as alabaster;
Thy lips are like the crimson of the morn.
Thy like will never live upon the earth, love,
Ere Gabriel blows a blast upon his horn.

—*Stilz.*

### PROVERBS.

If you can't reach anything, jump for it.

—*McCoy.*

If you can't reach anything, climb upon something higher and reach down. —*Wisely.*

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### SOLOMON LEVI.

You may talk of football games that rouse the spirit,
And tell how maiden's beauty charms a man;
But, of all my joys, I'm surely at my limit
When I sell some guy a nobby balmacaan.
When I sell a balmacaan, my boy,
When I sell a balmacaan,
I forget about my politics
When I sell a balmacaan.

—*Shanks.*

---

Note—Terry Turner said he'd write a poem; but he couldn't find any word to rhyme with "McCormick." After perusing the entire dictionary, we found that "dornick" is the nearest approach to a rhyme. Here is Terrys poem:

I took an exam from McCormick, see?
I was swept off just like "rock on dornick" see?
Now I don't care a slam
For any exam,
Except one that comes from McCormick, see?

---

## A SAFE AND SANE HALLOWEEN.

The night was cold and clear and the moon shone brightly. All was still around the campus. The main building was dark except for the pilot lights in the machine design room.

On this October night for many years, something had taken place on the campus. It had been the custom for the Juniors to meet here before their banquet. A bonfire of wood scrap had always been made, and some original form of Halloween amusements had been indulged in. There were legends which had their setting at this time and place. Tales were told of Pat Crowe and his billy-goat, of Poggy and the Y. M. C. A. room, of John Reid and the shop bell. Even the trees along the walk rustled with expectation.

As the faithful old clock paused on the last stroke of nine, four dusky forms slipped through the iron gates and crept stealthily up the steps.

"We have come," said one of the men.

"Ay, Casey, but not gone," said another.

"Hark ye, Brooks," quoth Casey. "Do not be unseemly rough. Leave enough of the Institute for the morrow's pursuance. O'Laughlin and I are for peace and order. We beg you and Anderson not to be too violent."

"Silence, faint-heart!" ordered Anderson. "You are one of the hell-raising committee."

"If you must, then," said O'Laughlin. "However, I do not relish the idea of being caught with you dare-devils. Casey and I will remain outside."

Brooks and Anderson put on masks, drew flashlights, opened the front door, and plunged within. The two on the outside trembled with apprehension and peered into the inner darkness with bated breath. Suddenly, out dashed Anderson.

"Run, men, run! He has done it! Run, I tell you!"

The three of them sprinted down Thirteenth Street, and did not stop till they reached the railroad. They were soon joined by Brooks who was lighter in weight and a fleet runner.

"What did you do, George?" gasped Casey.

"Sh! You must never tell who did it," warned Brooks. "I WIPED MY FEET ON DOC'S DOORMAT!"

* * * * * * * *

"So the old order changeth," and a time-honored custom is broken.

One by one, the lights are extinguished: Senior Picnic, Pipe Rush, Junior Halloween Celebration; Athletics and the Modulus are tottering. What next?

* * * * * * * *

Note:—We do not mean daubing everything with paint when we say "celebration."

---

## THE JOYS OF MARRIED LIFE.

Wanted—To trade mandolin in excellent condition for slide-rule.

Wake up, Holloway. Opportunity knocks but once, you know.

---

1st Junior—"What queered our Hallowe'en doin's?"

2nd Junior—"You know what you find from an indicator card, don't you?"

---

## FROM AN ANCIENT MODULUS.

Sept. 15. Tonight the Freshmen get into society at Collett Park.

Sept. 19. Dr. Mees, while lecturing in Physics, tells the class that he *had* gone to church. (Past indefinite.)

Sept. 24. Smith has his overalls washed.

Oct. 5. Juniors practice football by moonlight.

Oct. 9. Harry relates his revised edition of stories to the Junior foundry gang.

Oct. 25. Academic building mistaken for the Normal by a foreigner.

Nov. 13. Rose Scientific Society organized.

Dec. 15. Sanford's nose returns to its natural state. The $H_2O$ cure was out of sight.

Dec. 24. Prof. McCormick joins the order of Benedicts.

Jan. 4. Smith swears on and on and on.

Jan 7. Sinks and O'Brien start to dancing school.

Jan. 22. Prof. Hathaway introduces the differential Hathaway.

Feb. 20. Organ recital by Dr. Mees, one pipe at a time.

March 15. Scientific Society meeting: attendance, 5. Ducky, Doc, and Howe jump the fence.

March 22. Spring vacation begins.

April 27. Sixteen Juniors are quarantined and fail to get to their recitations.

---

As a result of Sam Finklestein's call for yell practice, the gym was crowded a few days ago, only one student being absent. This one student was you, reader of the Differentials. It is needless to say that the crowd raised the roof. Finklestein also announced that fully forty men had submitted either a song or a new yell to his song and yell contest, in which somebody was to win about five dollars. (Who got the five, Sam?) Everything went along smoothly until some mad student, in his frenzy of spirit, tramped on Abe Hegarty's sore foot. The meeting ended right there.

(Paid Advertisement.)

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We notice that, along with a few professor-poets, Henry Van Dyke has a poem in the *Normal Advance* for November. Is Henry taking the college course? The next thing we know, Rex Beach will be enrolling in our prep. school.

---

Charles E. Downing of the class of 1915 would like to call the attention of all the Civils to an example of the durability of concrete. Old Ft. Harrison consisted of two round concrete towers and a concrete porch connecting them. In spite of all those Indian attacks and 102 years of weather, the Fort seems as good as new,—at least, Mr. Downing could find no evidence of wear when he and the rest of the Civils sounded the Wabash in front of the Fort.

---

Mr. E. D. Brauns, Senior Chemist, received an ugly mark on his forehead just above his nose while trying to vote the Progressive ticket Tuesday the 3rd.

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## THE 98TH PARODY.

The melancholy days are come, the saddest of the year,
When students have no time to shave, and swear off drinking beer.
Back in our dear professor's brain are hidden questions, hazy;
They come forth now, at mid-terms, to set the students crazy.
The slide-rule's working overtime, the grand prize is an A,
And back and forth J. Reuben walks throughout the gloomy day.

The keno and the poker game, they perished long ago,
The students have a haggard look because they study so;
And, in their midst, the hoodoo sits; the grining fiend won't go.
The hour hand creeps around toward noon, and lambda looks like rho.
The pesky formulas won't come, it's hard to multiply;
Knowing half his work is wrong, the student heaves a sigh.

There was a third verse to the above effort; but it was cut out by the press censorship board.

---

Pigg, looking at scoreboard in Chem. Lab. during last game of world's series—"H'm! When did they put Rudolph out? I see Gowdy's pitching now."

Soph. to Coles—"Where's the $H_2S$ bottle, Mr. Coles?"

---

Young Lady to Mr. Wallace—"Now when you get out of school will you be entitled to a job, Hugh?"

---

Knippy in Elect.—"Mr. Carlisle, defend your figure."

---

Knippy in Elect.—"Well, now, how are you going to raise the magnetization curve?"

Voice from Rear—"Use a jack, professor."

---

Boyce, in Eng.—"When the postoffice dept. was established, the government passed laws prohibiting anyone from doing any mail business at all."

---

Knippy in Elect.—"Who isn't talking in here besides me?"

---

Coles, speaking of the manager of a certain local factory—"I had a notion to tell him it was as great a condensation for me to bring the class out as it was for him to take them thru."

---

Jo Jo, in Joubert, after filling the board with equations—"There it is. I don't know whether its right or not."

---

It is with regret that we announce in this issue a fact which we learned on the recent pilgrimage to Greencastle. The crux of the matter is, that one of our fellow students, Mr. G. W. Brooks by name, has been leading a Jekyll-Hyde existence during his attendance at the Institute.

Posing in the school as a moral, upstanding young man, with a healthy dislike of vice in all its forms, and even attaining a position of prominence on our own staff, he has all the while been conducting an institution at Brazil, known to the inhabitants of that fair city as George Brooks' Saloon.

Our faith in humanity received a severe jolt when that legend met our eyes, and it is with a feeling of shame that we draw a curtain over this odious disclosure.

---

To Hath who has just been telling about the train hitting the snow bank:

Carlisle—"Wrap it up Fesser. I'll take it."

---

(Milk in drawing)—Prof. will you please consult your chronometer to ascertain if the hour of dimissal is at hand?

---

Downing (at Ft. Harrison with the River Gaugers)—Was that Fort ever used in any war?

Stoner—Yes.

Downing—Which one, the Spanish American?

Stoner—No, Napoleon Bonaparte led an attack against it in the Civil War.

---

## FRESHMAN MECHANICS AGAIN.

Fresh Greeno—Say, we can't work this problem in composition of motions.

Fresh Bubbo—Why?

Fresh Greeno—It's about a fly walking on a platter and we haven't any fly.

---

## FABLE.

A fool once went up in the balloon Education. Finding, in order to climb higher, that he must cast over ballast, he threw over Outside Interests, Sense of Humor, and Perspective of Human Nature. He reached the height and was, in time, honored with the key of Phi Beta Kappa.

Afterwards he starved.—*Daily Texan.*

---

Fresh—I have just been appointed to collect your laundry bill.

Soph—Let me congratulate you on being fortunate enough to secure a permanent position.

---

"Could anyone come between us, love?"
He asked in accents tender.
"Well," spoke the young brother under the lounge,
"They'd have to be awfully slender."—*Ex.*

### A BAD FIX.

"How are you fixed financially, old man?"

"I'm at the saturation point."

"What do you mean?"

"At the point where I've soaked all I can."
—*Boston Transcript.*

---

### EASY ON THE BRAIN.

The doctor has forbid me to do brain work. What occupation shall I engage in?—*S. A. D.*

Write poetry.—*Ex.*

---

A beard of tan material
(You know), a brown imperial
Is all you have to wear today
To make the ladies come and stay
And talk with you, Because, you see,
They all enjoy a tan goatee.—*Ex.*

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Bashful Freshy to Burly Soph—"Oh, sir, look at the funny bald-headed man."

Burly Soph to Bashful Freshie—"Cease thy cackling, child, he is not bald—he's just got a tall face."

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### AT THE MARY STUART.

Waitress—"What part of the chicken do you wish?"

Robinson—"Some of the meat, please."

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### AT THE BASEBALL GAME.

He—That's great, we have a man on every base.

She—That's nothing, so have they.

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A distinguished German scientist in the Department of Agriculture was working over a spirit lamp on which a small pot bubbled, when a friend came into the laboratory.

"What is it tonight?" asked the caller.

"Guess," said the professor invitingly.

"Micrococci?"

"No."

"Sonococci?"

"No."

"Streptococci?"

"No."

"Spirochaeta."

"No."

"Then it must be something new. What is in the pot?"

"Sausages," replied the professor blandly.

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1917—Are you instrumental in college affairs?

1914—Sure; I play the piano in the band."
—*Stanford Chaparral.*

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### MACHINE DESIGN.

"How do you keep from getting seasick?"

"Dunno. How?"

"Why, bolt your meals."

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Downing—"The dentist says I have a large cavity that needs filling?"

Stoner—"Did he recommend any special course of study?"

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Waiter—"What will it be, sir? Sauerkraut or pate de foie gras?"

'18—"Ham and. I'm neutral."—*Harvard Lampoon.*

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## COLLEGE NOTES

Chimes which are to cost $7,500 are to be placed in the tower of Orton Hall at the Ohio State University.

The college authorities at Hobart have issued a pronouncement to the students to the effect that hereafter any Hobart student who is known to use alcohol will be debarred from receiving scholarship or other aid from the college.—*Red and Black.*

An athletic society has been established at Yale for the purpose of decreasing the death rate among athletes. The plan is to develope a man along several lines in order that training for football or track will not be so injurious to him.—*Red and Black.*

The freshmen in the College of Civil Engineering at Cornell University receive a card

three and one-half by five inches, reminding them that they are on their honor to do individual work not only in exams, but also in class room and in working up reports and problems. This is one method used in running the Honor System there.—*Ex.*

An anonymous donor of $100,000 to Cornell University has made an additional gift of $50,000 for the erection of dormitories.

The effect of the war on foreign universities is shown in the case of Oxford University, which will open with an undergraduate body of only one thousand. Those absent on military service, however, will suffer no loss of acamedic standing, the time spent in war counting as time in resident at Oxford.

Cornell University receives a gift of $700,000 from the Schoelkout family to complete their track and football field, which is to be named after the family.—*Ex.*

Because of the stringency of money and the inaccessibility of paying situations about the University of Ann Arbor, approximately 700 students will be lost to the university this fall.—*Michigan Daily.*

Compulsory chapel has been inaugurated at the University of Pennsylvania.

University of Colorado Freshmen will not be allowed to use tobacco in any form. Ten Sophomores have been appointed to see that the Youngsters keep off the weed and to bring any offending freshmen up for punishment. Isn't that carrying Fresh rules to the extreme?

Senior Engineers at the University of Colorado wear flannel shirts, red ties and blue trousers on chapel days. The few men who refused to wear the prescribed attire were hazed by the members of the class.

The value of the chapter houses of Greek letter fraternities in the United States is over $9,000,000. This amount is distributed among thirty-one of the thirty-six American college fraternities, having a total of 1,141 chapters. The number of houses owned is 513; their average value $18,070. Welta Psi, with only seven chapters, own six houses with a total value of $245,000, an average of $40,916 per house. Kappa Alpha (Northern) with only five chapters, owns five houses valued altogether at $143,500. According to the Greek Exchange however, it has become less fashionable to boast of large and costly chapter houses. Indeed, when one of these elaborate and costly piles is perpetrated, there are wise men among all the fraternities who shake their heads doubtfully and speak hesitatingly and apologetically.—*Ex.*

Dartmouth and Amherst have taken a step in the right direction by having fraternity members board at the commons, instead of at their houses, and so get some of the more intimate and domestic side of college life with the whole student body together.

Beta Theta Pi some time ago reported that two women were initiated into the Wabash chapter in the early days. Now S. A. E. reports a similar case in the initiation of a young lady who guarded the records of one of the Kentucky chapters during the Civil War.

High school fraternities are getting hard knocks from every side these days. At the recent Pan-Hellenic Congress of college sororities in New York it was agreed that no college sorority should take in a member of high school sorority after a certain date. The Inter-Fraternity conference is a little less radical and somewhat more conservative, but nevertheless very strongly recommended that the individual fraternities should prohibit the initiation after a date to be determined upon, of men who have been members of high school fraternities. And now the Pan Hellenic Association of Ohio State has barred all members of high school fraternities.—*Ex.*

Vanderbilt has played Michigan seven times, and was defeated this year for the seventh time.

# Notes from the Contemporary Engineering Press.

ARE there different kinds of superheated steam?

We do not now refer to the possibility of the existence of unevaporated moisture in a mass of superheated steam, the temperature of which is above the boiling point of the moisture. It has been demonstrated, if it needed demonstration, that water can exist for a limited time in an environment the temperature of which is above its boiling point just as a cake of ice can endure for a time on the curb in the sweltering sunshine of a summer's afternoon.

This discussion points in the other direction —up the scale, to dissociation.

E. A. Geoghegan claims to have a superheater the product of which is so much different from the steam put out by the garden variety of superheater that it can be used at over nine hundred degrees with impunity and oil hemp packing, whereas the degree of superheat which can ordinarily be usefully applied is limited by its effect upon the lubrication, packings, fittings, etc., to from one hundred to two hundred degrees.

The reason, according to Mr. Geoghegan, lies in the fact that in his superheater the temperature of the steam is brought up gradually, avoiding any tendency to decomposition, while with most other types a thin sheet of steam is impinged against surfaces at almost a red heat, affording ample opportunities for local heating above the thirteen hundred degrees needed for decomposition in the presence of iron or steel of that temperature. The oxygen eats up the superheater and the liberated hydrogen goes on to play heck with the engine and piping.

If this condition exists, it would be well to establish the fact and correct it. Cases have occurred where superheaters have oxidized badly, but they have been exceptional. Mr. Geoghegan claims that if a torch be held in front of a two or three-inch outlet in a pipe leading from some types of superheaters carrying, say, two hundred and fifty degrees superheat, and the valve controlling the outlet be opened and closed quickly, there will be a very noticeable explosion of the hydrogen present in the steam. If this is so it ought to be easily capable of positive demonstration and even the amount and composition of the gas determined.

The dissociation of steam at thirteen hundred degrees is not a spontaneous agreement between the atoms of hydrogen and oxygen that things have become too hot for them to get along together, but to the interference of the interloper steel or iron, for which, at thirteen hundred degrees, the oxygen has a greater affinity than for the hydrogen. If decomposition does take place in this way it is a serious matter, for each pound of steam so decomposed would eat up more than two pounds of superheater.

Dr. Augustus H. Gill, of the Massachusetts Institute of Technology, in an article discussing the decomposition of the steam, in *Power* of Jan. 28, 1913, cites Lowenstein and Wartenburg as having shown in 1906 that at two thousand and sixty degrees Fahrenheit (about the melting point of average cast iron) steam was but 0.0086 per cent. decomposed, and even at a temperature but little above that of melting wrought iron (twenty-nine hundred degrees Fahrenheit) only one-third of one per cent. was dissociated. This means that in cast-iron or wrought-iron containers practically no steam can be decomposed into hydrogen and oxygen; and if there were any of these gases formed, inasmuch as the reaction by which they are formed is under the conditions a reversible one, that they will recombine the moment the temperature is lowered.

In view of this a demonstration of the existence of the conditions claimed by Mr. Geoghegan is essential to the serious consideration of the merits of his system. Such a demonstration is easily possible, but so far as we know is yet to be made.—*Power.*

## ENGINEERING SALESMEN.

THE foreword this week holds out two directions in which an operating engineer may hope to progress. One is quite obvious; advancing to a position of greater responsibility in the plant where he is engaged, as the superintendency of the works. Not so common is the other, that of salesman for the manufacturer of some line of equipment that he has been handling. Probably, it will come to many operating men as a new thought that there is a future for them in the selling field.

This idea appeals to us, and for some reasons besides those cited by the author of the foreword. As he says, we have a tendency to put confidence in the engineering salesman who shows a knowledge of his product in use. He is expected to be versed in the excellence of his goods so far as its manufacture is concerned and the material entering into it, but it is seldom that he can speak from experience as to its performance in operation. What he knows about what it does is usually second-hand knowledge picked up from his customers.

It has been the habit of manufacturers to recruit their selling force from the ranks of those who have the selling knack—and this, all too often, is based on the possession of a personality that wins friends, or a gift of persuasive speech. Not to discount these qualities, for they are highly important in any salesman, we maintain that they should be secondary and not primary considerations where the goods to be sold are of a nature such that the average individual cannot understand all that they involve in a short acquaintance with them. Any good salesman from his general knowledge, may quickly come to appreciate what distinguishes the good from the bad in cloth, or groceries, or a thousand other common commodities. Not so with anything so complicated as a piece of machinery, or even lubricating oils or fuel. Actual handling of these in use gives a man the customer's point of view as nothing else can. Where he can go to the prospective buyer forearmed with a knowledge of what his difficulties have been and how they may be overcome, the salesman's chances of a cordial reception are sure to be vastly increased.

Just as surely as the time has passed when the salesman needed to be a good mixer and stand treat generously to get orders, just so surely is the practice dying out of engaging men for their ability in the use of words. There is no denying the psychological effect, akin to hypnotism in some cases, of a flow of language that can sweep away doubts. This may make a first sale, but when the salesman has departed the goods must stand on their merits. If the buyer has been persuaded to take something ill-adapted to his needs, more harm than good has been done.

Let the next salesman who comes be a real engineering salesman. He can explain why the last trial was a failure and how to use his wares with success; thus a permanent user has been acquired. It goes without saying that the product sold must be deserving, but, given a worthy line and a salesman who is expert in the use of it, then the mere spellbinder has no chance.

Speed the time when more real engineers become engineering salesmen!—*Power.*

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## ECONOMICS OF THE HALF-WATT LAMP.

IN a paper on "New Developments in Incandescent Lamps," read at the recent convention of the Vermont Electrical Association at Brattleboro, Mr. C. W. Betcher, Harrison, N. J., pointed out that the gas-filled lamp now has 55 per cent of daylight color in its luminous flux, compared with 40 per cent in the case of the 1-watt-per-cp tungsten lamp and 22 per cent in the 3.1-watts-per-cp carbon-filament incandescent. Lamps of this type now range from 200 watts to 1000 watts in rating at pressure ranges of from 105 volts to 125 volts. The 1000-watt lamp, burning only three or four hours a night, yields a revenue of $100 a year at 10 cents per kw-hr. and is specially adapted to the lighting of store and theater fronts,

yards, etc. All these units are valuable in competing with gas arcs. The cost of connecting a 1000-watt unit to central-station circuits should not exceed from $1 to $2, so that the sales expense runs much lower than with many other classes of load. American manufacturers have now standardized the length of gas-filled lamps from the cap of the base to the center of the light source, which greatly facilitates the design and application of suitable reflectors. —*Electrical World.*

## CORPORATION EUGENICS.

THE institution by the General Electric Company of a compulsory physical examination for employees seeking to return to work after illness or a period of unemployment will naturally provoke opposition on the part of the workmen affected. But the regulation should operate to improve the efficiency of the employees by serving as an inducement to them to keep in good physical condition. There is nothing the average American is so prodigal of as his health. If he knows that his job depends on his keeping fit, there will be the strongest possible incentive for him to safeguard himself against disease. The company is obviously inspired by a desire to reduce its liability under the Compensation law; but the rule may prove a benefit to the men, as have the rules against drinking, enforced by the railroads. Perhaps in the end the corporations will do more for practical eugenics than the legislatures.—*New York World.*

## THE HORSEPOWER OF A RAINSTORM.

RECENTLY, there was a severe rainstorm in this locality, and when talking to an engineer about it afterwards, the question of its horsepower arose. I was interested enough to hunt up data on which to base a calculation.

The rainfall amounted to 4.17 in. in 10 hr. over a surface of approximately 10 square miles, and the estimated average height of the rain cloud was 5000 ft. This represents approximately 6,000,000,000 lb. of water which had fallen during 10 hr. from an elevation of 5000 ft., or 15,000,000 hp.-hr. Thus we see the energy represented by this one short storm.

Suppose man could avail himself of this energy and store it so it could be used at pleasure; for instance, for lighting city streets with 4,000 arc lamps. Allow 500 watts per lamp, making 2000-kw. load during the lighting period equal to 2680 hp. or, including losses, say, 300 hp. Allowing 12 hr. in 24 as the lighting period, the daily load will amount to 36,000 hp.-hr.

The length of time this energy would last would be 425 days, or one year and two months or one year and two months of light from one storm. This gives some idea of the enormous energy at work in nature.—*Power.*

## ELECTROLYSIS OF REINFORCED CONCRETE.

THE cause of the cracking of reinforced concrete when the reinforcing material discharges current into the concrete has been found to be the formation of rust upon the anode. In the report of the committee on electrolysis at the Atlantic City convention of the International Association of Municipal Electricians, Mr. Leon Taylor, the chairman, said the Bureau of Standards found that this formation of rust takes place only at temperatures around 100 deg. Fahr., and that damage to the concrete is therefore not to be expected unless the density of the discharge is very high or some other conditions keep the concrete above the critical temperature. The addition of a fraction of 1 per cent of salt to concrete increases its conductivity and destroys the passivity of the iron, thus multiplying the corrosion many hundred times. Salt should, therefore, never be used in structures that may be subject to electrolytic action.

The passage of current from the concrete to the reinforcing material has been found to cause a softening of the bond between the iron

and the concrete due to the accumulation of alkali there. The danger from electrolysis of concrete is greater where the current flows to the reinforcing material than where the current flows from the metal to the concrete. The passage of a current through unreinforced concrete has no effect upon the concrete other than that produced by the heating effect of the current. Electrolytic corrosion seems to be independent of the quality of the iron.—*Electrical World.*

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## AUTOMATIC TRAIN SPEED CONTROL.

THE International Signal Co., New York, has, after much experimentation, developed an apparatus which seems to successfully operate in automatically slowing the speed of trains to a certain predetermined limit for the purpose of insuring safety in operation over track which for some reason may have been rendered permanently or temporarily unsafe at usual speeds. This apparatus is designed for application in connection with the automatic train stop which this concern has had under tests for the past months on the New York, New Haven & Hartford and the Delaware, Lackawanna & Western.

The automatic control is entirely mechanical and its operation is effected through a ball governor and the air brakes. A service application is made with the speed control in the same way as with the automatic stop.

In connection with the tests of automatic stops on the New Haven, it might be mentioned that snow and ice caused some embarrassment but changes in minor details of the International stop seemed, up to the close of winter, to have solved such difficulties.—*Railway Engineering.*

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## GAS-BLOWING ENGINES.

THE Mesta Machine Company of Pittsburgh, Pa., are now building for the Pennsylvania Steel Company of Steelton, Pa., two gas-blowing engines of 46-in. and 84-in. cylinder diameters and 60-in. stroke. These engines are believed to be the largest gas-blowing engines ever built in the United States or on the American continent.

The gas cylinders and blowing cylinder are arranged in tandem; that is to say, the air cylinder is directly back of the gas cylinder. This arrangement has never been used in the United States but has been universally adopted by European gas engine builders. Undoubtedly this arrangement makes posisble a much simpler design of the whole engines.

Another innovation as far as American gas engines are concerned is the use of a center crank instead of an overhung crank. While it is possible to build large engines with overhung cranks, it is considered that the center crank provides a more rigid construction; all of their large reversing engines have been built with center cranks and have been universally successful.

Finally, the blowing tub is equipped with the well known Mesta automatic plate valve (Iversen patent) which, since its introduction in 1911, has been a complete success. With these valves the efficiency of the air end is greatly increased and the cost of maintenance and repairs reduced to practically nothing, as all complicated valve gear is eliminated.—*Metallurgical & Chemical Engineering.*

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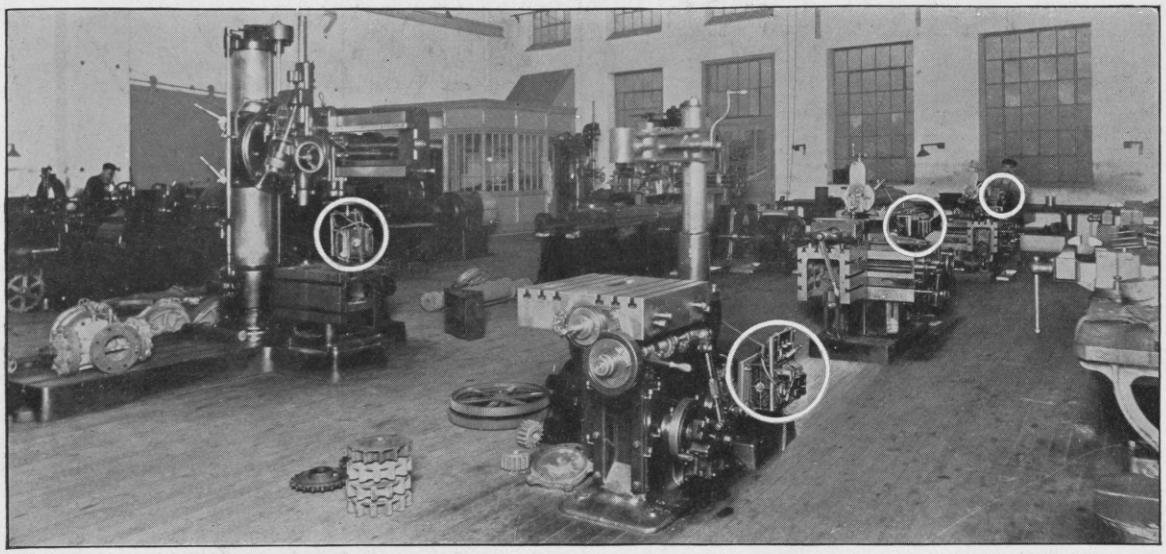
## VENTILATING THE UNDERGROUND RAILWAYS OF LONDON.

UNDER the old method of ventilating the tunnels of the Underground railways in London, the air was withdrawn by means of an exhaust fan. By the device now being installed at the Edgware Road, Euston, and at the new Embankment station, constant supplies of air will be pumped into the tunnels throughout the day and night. Ordinary air is passed through a washing screen which extracts the impurities, the requisite humidity is next imparted, a proportion of ozone added, and it is then sent into the stations at the rate of 25,000 cu. ft. per minute.—*Railway Age Gazette.*

# INCREASE THE CAPACITY OF YOUR MACHINE TOOLS



The worth of a machine is gauged by what it produces; no matter what its real ultimate capacity may be, it is not worth any more to you than what it produces.

A machine tool may have the stiffness and power to turn out twice the amount of work it is actually performing, but the hardships and the uncertainty of controlling its different operations have slowed up the workman; he is cautious, uncertain and may be tired and disgusted.

Let this same tool be equipped with E. C. & M. Automatic Control and the entire situation is reversed. The workman merely moves a small lever to one position to start the machine in the shortest, safe time. Another movement of the same lever stops the machine in the shortest, safe time. Still another movement reverses the machine in the shortest, safe time.

Instead of feeling cautious and uncertain, the workman is precise and definite in his work. He feels invited to a test of capacity and as an entirely natural result, he produces more and better work.

These statements are not pleasant generalities; they are the basic reasons why E. C. & M. Automatic Control is fast becoming the standard with those who know best. E. C. & M. Control is convenience capitalized.

*Write for Bulletin 1017*

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