Winter 2-1914

Volume 23 - Issue 5 - February, 1914

Rose Technic Staff
Rose-Hulman Institute of Technology

VOL. XXIII TERRE HAUTE, IND., FEBRUARY, 1914 NO. 5

THE TECHNIC

TERMS.

One Year $1.00
Single Copy ..... .15

Issued Monthly at the Rose Polytechnic Institute.

Entered at the Postoffice, Terre Haute, Ind., as Second Class Mail Matter.

THE leading article for this issue is by Carl B. Andrews of the class of '08. Mr. Andrews is at the present time chief engineer of the Ohau Railway and Land company, Honolulu, H. T. His subject, "The Use of the Divining Rod in Locating Subterranean Water," is one which nearly every one ranks in the same class with "ghosts" and "fortune-telling," but we are sure that after reading this paper, this long-ridiculed practice will at least be held in more respect.

IT is with regret that we record the death of Preston Hussey Esq., who was Vice-President of the Board of Managers of the Institute and had been a member of that board since 1879. Throughout his long and successful business life he contributed of his time and judgment to the guidance of the Institute during the many years since its founding. We extend the sympathy of the student body to his relatives and many friends.

THROUGH these columns we desire to express the appreciation of the work of Mr. Gilbert as coach of our basket ball team. He is a man of clean habits and a thorough gentleman in every respect, and though his profession is baseball yet his knowledge of basketball cannot be questioned as he has rounded out a team which is a serious contender for the state title. We heartily wish him continued success for both the teams' sake and his own.

THE Alumni article for this issue is by S. S. Roberts, '98. Mr. Roberts is a member of the firm of Howard and Roberts, Civil and Consulting Engineers, Chicago, Ill. We recommend this article especially to the student body as we believe that the statements of an experienced and successful engineer such as Mr. Roberts will go far towards removing the belief held by many that the most successful engineers in life were mediocre or poor students in school.

THE USE OF THE DIVINING ROD IN LOCATING SUBTERRANEAN WATER

By CARL B. ANDREWS, '08.

A "DIVINING-ROD" is defined in Webster's Dictionary as "a rod, commonly of witch-hazel, with forked branches, used by those who pretend to discover water or metals under ground."

As the above definition indicates, the success attending the use of the divining-rod is questioned, and probably the incredulity is greatest among those who have seriously studied physics.

The divining-rod has been recently studied in the light of modern science, by Monsieur Henri Mager, who has set down his conclusions, along with other matter, in two volumes,* which are very readable and interesting. The greater part of the information in this article has been culled from these two books, and the reader wishing proof or further information concerning any of the statements herein, may find it by consulting one or the other of these books.

The known use of the divining-rod for the discovery of water dates from the 15th century, though some claim to find a reference in Cicero's writings indicating its use among the Romans. Literature on the subject dates from the 16th century; the divining-rod was declared by some to be a useful and genuine means of locating not only underground water, but also precious metals and buried treasures; certain churchmen expressed their convictions at various times that the divining-rod was moved by the devil, although other churchmen used it with success, and apparently without qualms of conscience. The use of the witch-hazel forked twig has continued to the present time, and there are so many well-authenticated instances of its successful operation, that for the present we may assume that, in the hands of certain persons, the stick does move when brought into the vicinity of underground streams, and confine ourselves to a consideration of the possible causes of the movement.

In use, the forked twig is held in a horizontal position, with the fork pointing away from the operator; one branch of the fork is held in each hand, the hands being held palm downward. In order to hold the twig in this way, the prongs must be bent outward in the plane of the fork, so that there are internal elastic stresses which must be resisted by the forces applied through the hands. With the stick held as described, the operator using every effort to hold it in the horizontal position, walks over the ground to be searched; when he nears the water source, the fork begins to deflect downward, the angle of deflection being greatest when directly above the water. As the operator walks away from the source of water the stick reasummes its horizontal position. With some operators the fork moves up instead of down. Other operators use a fork bent up of metal wire, and still others use no stick at all, but locate the water by the sensations in the nerves of the hands and arms. The work is said to be a severe strain on the nervous system of the operator. There are instances known in which the twig deflected downward, but where no water was found by digging.

At a conference of the Society for Psychical Research, held under the presidency of Sir William Crookes, Professor Barrett, of Dublin, proposed the following statements:

"1st. A certain number of persons, (one or two in twenty) are endowed with a special sensitiveness, which manifests itself by slight involuntary and unconscious movements, mainly of the hands and arms; no doubt all persons possess it in a degree more or less developed.

2nd. These movements may be increased by practice, by expectant attention and by prohibition of voluntary control of the special muscles in question.

3rd. These movements are shown clearly by means of the oscillations of the "exploring pendulum (a ring or a sphere suspended by a thread, the end of which is held between the thumb and index finger), by the movements of the divining-rod, * * * "

It is to be understood that the sensitiveness mentioned is sensitiveness with respect to running underground water or metallic bodies.

He adds: "The 'motive automatism; which is the name given to the phenomenon of movement before mentioned, is a reflex action, due to some stimulus, such as, 1st, a latent idea or a subconscious suggestion in the mind of the automat himself; or, 2nd, a subconscious impression produced in the mind of the automat by an external object or intelligence."

Further, Professor Barrett thought that the phenomenon of subconscious impression was responsible for most of the movements of the divining-rod. He said, "Subterranean water or metals are often indicated by signs on the earth's surface, imperceptible to the ordinary observer, but which do not escape the experimenting searcher; these signs, however, are not consciously perceived, but create a subconscious impression in the searcher, in such a way as to cause a movement of the divining-rod." There are instances of circumstances which are not satisfactorily explained by this hypothesis, and Professor Barrett suggests that the diviners may possess a "supernormal perception" which automatically produces the reflex action referred to, when the person is in the vicinity of any object sought.

One fact has been definitely established; namely, that in certain cases, certain persons, who may be called "sensitives," experience a definite impression. Among the causes which produce this impression is the proximity of a metallic body. The influence of metals on human beings, which has been demonstrated by a number of scholars, has of recent years been shown by experiments of a scientific nature.

Mr. Mueller, of the Salus Institute of Zurich, published in 1900 the result of his researches on the direct or indirect influence exercised by metallic masses on the nervous system of persons possessing exceptional nervous sensitiveness. These experiments appear to prove the existence of a "metal influence" which produces effects most markedly on the part of the body near the shoulder blades.

The experiments were made with the aid of a "neurometer" invented by Mr. Mueller. The action of this device is based on the fact that when a slight electric current traverses the human body, it produces a feeble fluorescence which may be measured by the rotation of a small mirror which reflects a ray of light onto a scale; if in the body an excitation is produced by any cause, the position of the ray on the scale is altered; the neurometer thus shows the reflex actions which take place in the body; if various readings are noted at various times, a curve may be platted from them which will indicate the effect of the various conditions existing during the period of observation.

This device was used with various persons, to note the effect on them of the presence or absence of a plate of brass about 24 cm. square and 4 mm. thick, nickeled on one side and varnished black on the other, which was placed behind the subject at about the level of the shoulder blades, a paper screen being placed between the plate and the subject, to prevent auto-suggestion influences. Detailed accounts of some of the results obtained are given in both of M. Mager's books. Sometimes a sensation as of cold was felt by the subject when the metal plate was placed in position, and the gen-

eral conclusion arrived at is that there appears no doubt that a strange physiological influence is shown in certain individuals as a consequence of the proximity of metallic masses.

"Sensitives" are affected in the above manner by the proximity of a flowing liquid, especially subterranean streams of water; of a gaseous current circulating in a conduit or dry subterranean cavern; of an electric current, if it is weak; when near metallic ores and veins of minerals the impression may be as pronounced as in the case of flowing water, while the presence of a small metallic mass is felt only by the ultra-sensitive.

There are certain statements regarding radiant influence, the proofs of which will be omitted, which are as follows:

1st. Water, currents of any kind, minerals, metals, and in general, all bodies, including mineral bodies, living bodies, and even seeds, etc., emit an influence or force, which produces at a distance an impression upon "sensitives," and probably to some extent upon all persons.

2nd. The impression may cause an organic reaction, which shows itself most easily through an object held in the hand, such as a divining-rod or a pendulum.

3rd. The "sensitive" may voluntarily put himself in a state of special receptivity, in order to feel, at a given time, the impression from only one kind of body.

The nature of this radiant influence has been considered by various students of the subject to be humid, magnetic, radio-active, electric or caloric. The observed phenomena indicate that the influence is probably electric in character, though this term may include what is understood as radio-active, and perhaps what is called magnetic or caloric.

Lightning is an electric discharge; a quick neutralizing of two opposite charges of neighboring clouds, or between positive electricity in a cloud and negative electricity in the earth.

The relative electrical states of the air and the earth deserves some consideration. Dry air is a poor conductor of electricity; its charge, then, probably exists throughout its volume; experiments have shown that it is always more or less charged, and that the intensity of the charge increases with the altitude, reaching a maximum at from 3,000 to 4,500 metres above the earth's surface. These statements are based on experiments in which an electroscope on the earth's surface was connected by wire to a metal sphere carried aloft by balloon or kite. The electricity of the air is positive, according to the conventional designation.

As to the cause of the electrification of the air, some have supposed that it was due to a direct act of the Creator; that the earth was created with a negative charge which it cannot lose, being isolated in space, and that the positive charge of the air is induced thereby, or *vice versa*. Evaporation and condensation have been long considered as possible causes, by physicists, but opinions are divided as to just what part each process performs. Others have supposed the charge of the air to be due to friction, of the air on the earth, or between the air and suspended water drops, etc. The electrification of clouds appears to be affected by the negative charge of the earth, the lower surface of the cloud being positively charged, and the upper surface negatively charged.

Since the charge of the air increases with the altitude, the air may be considered to be composed of a number of equipotential layers, which in general follow the undulations of the earth's surface; they have been found to follow the outlines of buildings, trees and other objects. At any fixed point in the air the potential varies diurnally, there being apparently two maximum periods, from 7 to 9 A. M., and from 6 to 8 P. M., and two minimum periods, at about 4 A. M. and 3 P. M.; the season of the year also affect the potential to a certain extent.

The earth is a conductor of electricity, and as such, possesses its charge distributed over its surface. The charge appears to be most intense at the summits of mountains.

As to the origin of the charge, the theory considered most plausible by M. Mager is that it

is produced by radio-activity. Radio-active substances, such as uranium, radium, polonium, actinium and thorium, emit radiations which are called X or cathode rays, which may also be produced artifically.

If a continuous electrical discharge is passed through a Crookes' tube, a dissociation of atoms is produced; from the face of the cathode there is thrown off a stream of particles charged with negative electricity, projected with great velocity, and constituting the cathode rays; these particles are negative electrons. At the back of the cathode, when it is perforated, appears another luminous stream, the sheaf of canal rays, or positive rays, formed of particles projected from the anode, and carrying a positive charge; these particles or positive ions are many times larger than the electrons, and less rapid in their motion.

If a small concave mirror is taken as the cathode, and the negative cathode rays are concentrated on a small object placed at its focus, for instance, a plate of platinum, the platinum warms and becomes the center of emission of the radiation discovered by Roentgen, and which he called the X-rays. These rays are not electrified, but possess the remarkable property of discharging electrified bodies, and they ionize gases, that is, they separate them into particles charged positively and negatively.

The cathode rays are affected by magnets, and are attracted by a positive electric charge and repelled by a negative charge. The X rays are not affected by either magnetic or electric fields.

An atom is to be understood as consisting of an ion, with its positive charge, with numerous negatively charged electrons moving about it, like satellites about a planet. The positive ion is of the magnitude of the atom; the diameter of the electron is about one-sixty thousandth of that of the ion. These negative electrons appear to be the fundamental unit of electricity. The atom, with its normal proportion of ions and electrons, is electrically neutral.

If radio-active bodies are placed between the poles of a strong electro-magnet, it is found that the radiations divide into three distinct sheaves, to which Rutherford has given the names of the *alpha*, *beta* and *gamma rays*. The *alpha* rays are very slightly affected by the magnetic field, they are very slightly penetrative, they have almost no effect on a photographic plate, and they form about 99 per cent. of the total radiation; they are considered as made up of positive ions having the dimensions of atoms and a velocity about one-tenth that of light; that is, they are practically identical with the canal rays mentioned above. The *beta* rays are composed of negative electrons, or are similar to the cathode rays, and the *gamma* rays are closely analogous to the X rays.

Doctor Gustave le Bon, in his work of The Evolution of Matter and of Force, states that practically all bodies in Nature emit an emanation analogous to that of radio-active substances, and that radio-activity is a universal phenomenon accompanying dissociation of matter, as widely distributed as heat or light. Aluminium and magnesium become radio-active under the influence of light; mercury is very active if a trace of tin be added; salts of quinine become radio-active and phosphorescent if allowed to hydrate slowly; ultra-violet light, striking a metal plate, produces an emission of negatively-charged rays similar to cathode rays. Similarly, whether it be spontaneously or under the influence of light or other causes, the bodies surrounding us are almost all radio-active. With this review of the radio-active theory as to the cause of the earth's charge, we may pass to a consideration of the effect of its presence.

When two contrary electric charges are near one another they tend to combine, and the combination may be gradual or sudden. When the charges are on the earth and on a cloud, and the discharge is gradual, there are no visible phenomena. Trees are agents of discharge; the equi-potential layers of air take a funnel-shape

above trees, which serve as conductors between the earth and the air; in other words, trees serve the same purpose as lightning rods.

The negative electricity of the soil tends to discharge into the atmosphere by all bodies which leave the soil, by dust, fumes, water vapor, and by gases discharged by the respiration of plants and animals; it may in times of storm, discharge at points, to combine with the electricity of the air in a mild and continuous manner, as St. Elmo's fire.

Under ordinary circumstances it may be supposed that there is a continuous current of electricity from the earth to the air, or *vice versa*, as one chooses to consider the direction of flow. It seems likely that the uniformity of the flow is disturbed by the presence of flowing subterranean water, and that the difference of intensity of current at points near such a flow is responsible for the reaction which shows itself by the movement of the divining-rod in the hands of "sensitives."

Acting on this supposition, M. Mager has constructed an instrument which he has called an "indicator of subterranean water in movement," the details of which he does not describe, but which carries as its indicator a magnetic needle, magnetised and mounted especially for the purpose. The instrument stands on a tripod, and when in use is moved from place to place over the ground to be examined. The presence of a subterranean stream is indicated by oscillations of the needle after it has first been brought to rest. This is as it should be, if the uniform flow of electricity is distributed by the underground flowing of water. If the water is flowing swiftly, these oscillations may have an amplitude of from 25 to 50 degrees. The precautions to be observed in the use of the instrument are, to note that the locality is open (not wooded or broken in character), that the surface of the ground is dry, and that the weather is clear and calm. If the ground is wooded or broken, the equipotential layers of air are no longer horizontal, and may act on the needle. If the surface of the ground is wet, making it a conductor, the manifestations are unreliable, and winds and clouds may sometimes cause oscillations where no water is present.

The use of the divining-rod has been so widely known, and there have been so many firm believers in the value of its indications, even when no logical reasons for its actions could be assigned, and there have also been so many persons who have ridiculed the divining-rod as being an absurd deception by pretending wizards, that it is interesting to find the subject studied from a scientific standpoint, as is evidently being done in France and Germany at present. I hope that the above brief and partial review of some of the main points brought forward by M. Mager may be of sufficient interest to prompt a spirit of open-mindedness, if not of investigation, toward this strange process of water-finding, which has for so many years been regarded as either humbug or semi-supernatural.

THE CURRICULUM OF ENGINEERING SCHOOLS

By S. S. ROBERTS, '98.

AMONG the essentials of a successful college training there stand out preeminently important; a wisely determined curriculum; a conscientious effort on the part of the student; and a corps of professors who are teachers and leaders.

In a college of Literature and Arts or in any course dealing chiefly with government, history, languages, philosophy, etc., which are indefinite and based on opinion affected by continually changing social conditions, it may not only be advisable but necessary to materially change the curriculum to keep pace with the conditions on which their tenets are dependent.

The highly specialized courses presented by many of our colleges of engineering evince the same unrest without the same justification. The broadening of the field of engineering activities is a fact. The division into Civil, Electrical and Mechanical branches is natural. In the past, in the best institutions, instruction in these divisions has stood firmly on a safe foundation of the fundamentals; mathematics, natural science and mechanics, which have not changed. The course in each of these branches differed but slightly and only in the last years of the course, when the particular application of the natural laws to each branch is emphasized. The later subdivision of these branches into the highly specialized courses appears the natural result of the more diversified engineering applications. Yet it brings up questions about which even the doctors disagree.

In four years can sufficient specialization be made to be of material benefit without sacrifice of time that should be devoted to the fundamentals?

What number of students are capable of choosing a specialty during college days?

Of these how many are financially able to pursue their chosen specialty after graduation until they may become established in it?

Is it not a fact that the specialty followed is more frequently determined after graduation by the necessity of the graduate, commercial conditions and aptitude developed in practice?

It is certain no course is good, that is specialized at the expense of broad and thorough instruction in fundamental principles.

Dean Goss, of the University of Illinois, in a recent address, said:

"Year by year the technical school has increased the emphasis given to processes which are mathematical. The progress of the next decade will be seen in the thoroughness with

which high standards in such work are accepted and advanced. The intensive work of the course must be based upon fundamental theory and the fields to which such theory is applied must be broadened. The engineering graduate is no longer required to be prepared to operate machines, but he must have a well trained mind, and he must possess power to perfect his qualifications along any specialized lines in the shortest possible time. To this end, the years in college must be spent in acquiring an understanding of those aspects of theory which are difficult to acquire after completion of one's college course."

Whether all of the technical schools have advanced, as Dean Goss states, is open to question. If they have not, they should.

Mathematics, logic, physics, mechanics and English should be the basis of all courses of instruction in American technical schools, and should be as broad, thorough and comprehensive as possible.

The courses of study, subjects and order in which given should be defined by the faculty and rigidly followed.

The most popular fad of the time is college education. It leads many youths voluntarily and involuntarily to seek that for which they have no endowment or capacity. Many otherwise, happy, and excellent "hewers of wood and drawers of water" are rendered discontented men, engineers only in their own egotism, disappointments to the parents who have made self-denial for them.

If undergraduates will be honest with themselves, a very few know what they want or why. Very few indeed realize they have entered upon their life work, and that their days in college are an earnest, vital part of it. They certainly do not appreciate that they are in business for themselves with the facilities of the institute for their physical plant and the faculty for their assistants in acquiring easily and thoroughly that which they must have, and later may obtain only with difficulty, and frequently under unfavorable circumstances.

The general attitude is that they are leased out to the faculty for four years without compensation and that they are "to the good" in everything in which they can shirk and "get by with" in the examinations. On whom are they really "putting one over?"

Dean Goss said the engineering graduate must have a well trained mind. This does not mean a mind which is a store house of facts and wild ideas piled up in chaos through permitting the student to substitute what he chooses or prefers to do for what he should do. A trained mind is one stored with correlated facts and theories, received and classified in natural sequence, which are capable of being recalled when desired and logically applied to attain a given result. It is subject to discipline and capable of concentration on irksome as well as agreeable tasks.

In view of the character and general attitude of the mass of undergraduates, the lack of discipline and rebellion against authority engendered by electives and substitutions, the courses in engineering colleges should be prescribed and rigidly adhered to. A high standard of proficiency should be required. The elimination of the inefficient and incapable student is better for him and his college.

At a dinner of college men, some time past, the subject of changes in engineering courses was discussed. This brought up the attitude of undergraduates, who feel it is neither wise nor expedient to get all that is possible out of the courses offered, because it sometimes happens that the high man of the class is not the most successful in practice. This is an old sentiment and just as fallacious as old. It should not need to be refuted. Yet some men feel they honestly hold this belief. They reach the conclusion by deceiving themselves into believing that which they want at the time, is right. If high proficiency is not worth while, why should mediocre attainment be? Why not go farther and hold, like some successful, so-called practical engineers, that a college education is a detriment?

What is necessary for success in engineering practice?

Integrity, energy, judgment, experience, technical training.

Now, let a man come out of school chock full of training; he is of little value in practice until he has acquired experience; he becomes more valuable as he develops judgment through training and experience; he attracts favorable attention through his energy and willingness to take hold and his ability to do; he finally is accepted as capable to plan, direct, arbitrate and advise when his integrity, energy, judgment experience, and training have been proven.

Let a college man fall down in any one or more of the first four requirements and he is not a success. He may on graduation be short on training, but may have integrity and energy and he may realize the benefits of his experience in the attainment of good judgment. Experience shows that the graduate who skins through, but is successful in practice, has been longer than he would otherwise have been in attaining the same degree of success, and he has made up his deficiency in training at a cost of self-denial and labor out of all proportion to that required in college for the same result. The successful so-called practical engineer is generally well versed in the fundamental principles of engineering, but he got his training from labor that made him sweat drops of blood. It is peculiar that after all he has undergone to inform himself he will generally with fine hypocrisy, in the same breath, claim technical training is unnecessary, and still take deep satisfaction from feeling he is better informed than many college men.

The point is, an engineer must have technical training, a trained mind. Let him get it at college with assistance when that is his sole occupation, or let him slave alone for it afterwards. That is the college boy's elective. It is also his only opportunity to gain any advantage over the so-called practical engineer.

Observation shows clearly that many newly graduated engineers are their own worst enemy. Some never get over it. They seem to feel that they acquired an insurmountable advantage over the boy who has not enjoyed their opportunities and that, therefore, they do not have to work so hard or to give so loyal service. They place themselves in a caste considerably above their fellow workmen, and by snobbery, make enemies where they need friends. They overlook the fact that the boy, who has worked the four years they were in college, has experience and knows many practical details of which they must learn. The section foreman, bridge carpenter, signal maintainor, can all teach the graduate. They have learned they must work a little harder and give a little better service than the other fellow; that they must be willing to aid and appreciate aid from whatever source it is offered; that they must study men and be able to get along with them. As a matter of fact, when the college graduate first enters practice, the practical man has a decided edge on him. It is a wire edge, though, and may be soon knocked off by the truer temper of the college man as he gains experience.

Some young graduates, like "higher life Christians" feel they can do no wrong. They give indifferent service, make themselves disliked, have men promoted over them; then get "sore," accuse their superiors in position of prejudice and "knock" on their college for not giving them that which the dear Lord left out of their make-up—judgment. They grow impatient, seek changes, and are considered unreliable. Other graduates get off on the wrong foot, too, get a slap or two; see the sign, danger! stop; look; listen; have a change of heart, and then "go to it." They are developing judgment. Of course others start right and keep right. Nobody is worrying about them.

Engineers, young and old, too, often become so absorbed in the details of their work that they grow narrow and remain always a "hired man." They should early cultivate broader reading and interest themselves in activities out-

side of their work. They should be conversant with the social problems and conditions of their time and place. They are not good citizens unless they are and until they exert their influence to improve the conditions in which they live. They should be men of the community, not just men in it. The whole training and practice of engineers speaks for conservatism, right, justice and honesty before all else. Why are not men with such ideals and with trained minds well fitted to direct, to fill executive positions, whether commercial or state? Engineers should dream, that is, think originally and to purpose. What is the wireless telegraphy, the completed Panama Canal, any new work, but dreams come true?

ALUMNI NOTES

THE regular monthly dinner of the Indianapolis Rose Tech Club was held at the Chamber of Commerce at 6:30 P. M. Friday, January 30, 1914. After the dinner was disposed of, the meeting was called to order by President Insley. The following men were present: J. R. Curry, '06; W. L. Edwards, '10; E. F. Folsom, '92; Herbert Foltz, '86; G. H. Freers, '08; H. W. Heidenger, '08; D. M. Hubbard, '12; W. H. Insley, 1900; J. C. Johnson, '09; Don McDaniel, '07; W. C. Nadke, '04; A. C. Rassmussen, '12; H. E. Rogers, '06; J. M. Rotz, '06; H. A. Schwartz, '01; L. A. Snider, '05; K. V. Wood, '03.

The meeting was a very enthusiastic one, and considering the fact that some half dozen of the Alumni were out of the city, it was very well attended. Mr. Insley said that while the primary purpose of the club was to help Rose in every way possible, he wanted suggestions as to what other lines of work should be taken up. Mr. Foltz spoke of the fact that the promotion of a feeling of sociability among the members was absolutely necessary to hold the club together.

Mr. Folsom called attention to the fact that Rose lacked publicity, and urged the members to do all in their power to keep school activities in the public eye. He spoke of various methods of advertising, and said an effort should be made to get Rose items into the College News Notes in the Indianapolis newspapers more frequently.

Nodke and Snider also talked along this line, and it was suggested that a publicity agent be appointed for the club. They also favored social activity as a large factor in binding the club together, and making their other work effective.

Schwartz suggested that the Rose teams be entertained whenever they were in town, and that an effort be made at some time to bring the glee club over for a concert.

It was decided to hold an informal luncheon every Saturday at 12:30 at the Chamber of Commerce. A very newsy and interesting letter was read from Dr. White. This told in a general way of the plans for the new school, and the part that the Alumni would be called on to take part in this work. A vote of thanks was given Dr. White for his letter. The following committees were appointed:

To Make Suggestions on the Recasting of the Course of Study—Schwartz, chairman; Rasmussen and Freers.

Publicity—Folsom, chairman; Brennan, Schwartz.

Program for Next Meeting—Foltz, chairman; Curry, McDaniel.

Folsom suggested that the secretary correspond with all Rose Tech Clubs, giving them an idea of the activities we were interested in, and asking an exchange of ideas and proceedings. In this connection, Snider suggested that we formulate our ideas on any points we wish considered at the Alumni meeting in June, in order that we might have some definite propositions to bring up. He also thought it a good idea to bring these things to the attention of the other clubs, in order that more might be accomplished at the June meeting.

Mr. Foltz was appointed chairman of a committee to formulate a club yell. All members were asked to be ready to give suggestions at the next meeting.

The next meeting will be held Friday, February 27, 1914, at the Chamber of Commerce at 6:30 P. M. Any of the Alumni from over the State who happen in town on that night will be more than welcome. This invitation holds good for the Saturday luncheons also.

At the last regular meeting of the Los Angeles Rose Tech Club the following officers were elected for the coming year: President, Mr. Thomas Barrett, '11; vice-president, C. H. Seldomridge; secretary and treasurer, R. L. Smith, '09; corresponding secretary, E. T. Buckley, '09. The club holds its monthly meetings on the third Saturday of the month at the University Club, and will be glad to welcome any of the Alumni who may happen to be in the city.

Richard W. Benbridge, '06, has taken a position with the Terre Haute Malleable Manufacturing Co., of which A. W. Wagoner is president.

J. J. Kessler,, '97, has been elected to membership in the American Institute of Chemical Engineers.

ON Tuesday, February 10, there was held a meeting of the Student Council, and on Wednesday, February 18, a meeting of the Athletic Association. The minutes of neither of these meetings have been approved, and so are not available for printing in this issue.

At the meeting of the Student Council the most important business transacted was to turn the entire matter of green caps for Freshmen over to a committee composed of Eshelman, Poggensee and Barrett. This committee has the power to determine the style of cap and to set the date at which they think the weather will allow the "innocent babes" to wear the abbreviated sky-pieces without injury to their delicate ears.

At the Athletic Association meeting the engaging of Paul Turk as track coach was authorized. This is the first time that Rose has had a coach for the track team in many years, and should Mr. Turk prove as good a coach as he was athlete, track athletics should be on the boom.

PRESIDENT Mees returned Wednesday, February 18, from an extended vacation, most of which he spent in the Bermudas. With him was Mr. W. L. Ames, of the firm of Reed & Pinch, who was professor of machine design and drawing at Rose from 1879 to 1896. The doctor spent some four weeks in the islands, and was gone in all about six weeks. He reports a most pleasant and restful vacation, and says that the climate there was decidedly different from the old-fashioned winter that Terre has been enduring.

During the absence of President Mees, Prof. Wischmeyer had charge of his mechanics class, and according to reports the Freshmen did not notice the change when it came to the mechanics finals, as the usual number were swept off.

GENERAL ASSEMBLY.

THE first general assembly of the term was held Friday morning, January 6. In the absence of the president, Dr. White presided, and announced a complete revision of the hour plan for the second term, in order to eliminate the unbalanced schedules of most of the classes. The faculty hopes that this will help somewhat to improve the present rather low scholastic standing of the student body in general. Dr. White also advised that a little less gay life the night before might be conducive to better recitations the morning after.

The assembly was addressed by Mr. John A. Parkhurst, '86, assistant professor of astronomy at the Yerkes Observatory, Williams Bay, Wis. Mr. Parkhurst graduated with the first class that actually finished the full course at this institute, and was an instructor here for two years

after graduating. He has held his present position since 1898, and has attained unusual distinction in his profession. His work on variable stars is classic, and his study has opened a new field in stellar photometry and photographic photometry. He has just returned from a European tour, during which he visited some of the leading observatories and astronomical institutions of the Old World.

Mr. Parkhurst's lecture was on the subject of astronomical instruments, and their mounting and housing. He explained the different types of telescopes and showed a large number of lantern slides, illustrating numerous examples of both of the chief types. He also showed pictures of the leading European observatories and the various styles of telescopes and mountings used abroad. Of especial interest were a number of views of the great Yerkes observatory, which showed the various stages in the construction of the building and the mounting of the big sixty-two-foot telescope. Mr. Parkhurst's talk was the most interesting and instructive that has been given before an assembly for several years.

AMONG THOSE MISSING.

THE infant mortality rate at Rose this year is truly alarming. Of the sixty promising young Freshmen who first formed the acquaintance of Sir Oliver Lodge, Charley Smith et al. last September, nineteen either found the company of these estimable gentlemen unattractive and failed to become sufficiently intimate with them, or had not yet had sufficient training to be ready to enter such a high class of society. The following is an unofficial list of those who have withdrawn, voluntarily or otherwise, but mostly otherwise, including also those whose preparation was found to be insufficient and who are now taking preparatory work in the institute and are not ranked as full Freshmen:

Bremer, Bowsher, Bristow, Carson, Coffey, Dodson, Hewitt, King, Jolly, Johnson, Harvey, Prox, Scott, Smith, V. R., Smith, H. P., Alexander, Falls, Healey, Wittenberg.

In the Junior class four fell victims to Joubert and Analytical Dynamics—Cook, Piper, Swain and Somers. Charles H. Goffe has also returned to Brockport, but of his own volition, and with some hope of returning to us once more.

It has been pointed out that rather a large percentage of the above are fraternity men, but it will be found that the proportion is not higher than the abnormally large percentage of the student body who belong to fraternities. While it is extremely doubtful if the fraternities are especially conducive to high scholarship, no such conclusion can be rationally drawn from the above list, nor from the list of honor men as it is read off at commencement, although the latter may not be the highest type of student. With the overabundance of fraternities existing at Rose the average Freshman found most of his time pretty well taken up for the first six weeks of the term. Under the old ruling this condition was even worse, for while the rushing was perhaps a little less intensive, it was longer, and produced a correspondingly greater mental strain on the harassed Freshman. In order to keep alive, the fraternities are almost forced to keep after a man night and day in face of the fierce competition which generally centers about the most popular. The Freshman is usually not strong enough, even if he wishes to resist the charms of the good time that is shown him nightly in the fraternity house or around town in company with upper classmen, who know the ropes and are bent on showing him a good time. At a school like Rose the fraternity is, for out of town men at least, almost a necessity, and is the chief attractive feature of college life here. But at a school like Rose the curriculum is the first and most important thing, and not purely a minor consideration as at other schools. If the fraternity interferes with the curriculum it is not entirely a good thing, but the scholarship of fraternity men is as high as, if not higher, than

that of non-fraternity men. All of which seems to be arguing in circles without any conclusion at all, so we had better leave this momentous question to heads better able to reason it out, and apply our as yet immature brains to Applied Mechanics, Alternating Currents and other subjects better suited to childish minds.

NEW STUDENTS.

Ernest B. Allen, of Louisville, Ky., has entered the Sophomore class from the Massachusetts Institute of Technology.

Riggs has entered the Freshman class from the University of Cincinnati.

Rose 31, Louisville University 24.

THE Rose team, showing a great improvement, both in style of play and in general spirit over their work in the game with the Indiana Dental five, came from behind in the second half of the game with the University of Louisville on January 25th, and defeated them by the score of 31 to 24.

Snappy pass-work in the last period, together with efficiency at goal shooting, was totally responsible for the showing and victory. The Louisville team fought hard throughout the game, but were unable to withstand the attack put up by the Rose team in the second period.

The first half ended with Rose trailing with 11 points to 15 for Louisville. This very fact seemed to urge the men on in the second period, and before many seconds had passed it was evident who was to be winner of the game. Shortly before the last whistle blew, however, the Louisville team started a rally which, although it did not assume large proportions, threatened to for awhile. Immediately following this spurt, Rose repeated with a rally, and the game was won.

Planque was the only man on the Rose team who played the entire game, as Coach Gilbert did not use his strongest lineup at the start of the game, but all of the players showed up well.

Line-up and summary:

Rose (31).	Position.	Louisville (24).
Planque	F	Caldwell
Barrett	F	Henry
Hegarty, Davis.		Kornfeld
Davison	C	J. Daniel
Davis, Hegarty.		
Trimble, Deming	G	Walker
Swain	G	Rogers
Kingery, Carter.		

Baskets—Hegarty (5), Planque (4), Davis (3), Rogers (5), Caldwell (3), Kornfeld (2), Henry. Free Throws—Hegraty (5), Rogers (2). Personal Fouls—Kingery (2), Deming (2), Carter, Walker (3), J. Daniel. Referee—Stump, Wabash. Timekeeper—Hathaway. Time of Halves—20 minutes.

Rose 20, Earlham 11.

COMING from behind in the second half, Rose defeated the Earlham College five on February 7th before one of the largest crowds of the season, by the score of 20 to 1'.

The game was fairly fast and was very rough,

one or two of the players being on the floor nearly all of the time. The Rose team outshone the visitors at this style of play, and as a result succeeded in keeping the ball in their territory most of the second half, while in the first half it was near the Earlham goal most of the time.

Earlham had the better of Rose during the first half when passing was in vogue, and the Rose guards found it difficult to break up the short, deliberate and snappy passes of the visitors. In the second half, however, headed by Deming, Planque and Kingery, early in the period, the Rose team started a bit of fast passing which took the Earlham team off their feet, and which resulted in Rose getting more shots at the basket, and ultimately in winning the game. Many fouls were called by Referee Feeney, but in order to keep from slowing the game, he was forced to let many go unnoticed. Seven personal fouls were called on Rose, and six on Earlham.

Line-up and summary:

Rose (20).	Position.	Earlham (11).
Planque	F	Rowe
Deming	F	Wolfe, Stanley
Hegarty	C	Kemper
Carter	G	Williams
Kingery	G	Lancaster, Lamb

Baskets—Hegarty (4), Planque (3), Deming, Carter, Rowe (2), Kemper. Free Throws—Planque (2), Wolfe (4), Stanley. Personal Fouls—Williams (3), Kemper (2), Wolfe, Deming (3), Hegarty (2), Carter (2). Referee—Feeney, Notre Dame. Timekeeper, Withrow. Time of Halves—20 minutes.

Rose 22, Arkansas Aggies 21.

ON February 12th Rose met the Arkansas Agricultural College team, and defeated them in one of the most exciting games of the year. The game was clean from start to finish, and would have resulted in a much larger score had Coach Gilbert used his strongest line-up during the entire game.

In the first half second string men were used almost entirely with the result that the visitors had the ball in their possession most of the time, and succeeded in piling up a total of 13 points, while the best the Rose team could do was 5 points. The second period found the Rose team with their strongest line-up on the floor, with the exception of Deming, who was laid up with a sore side, and the tide of the contest was turned, but only after the hardest kind of a battle. Rose outweighed the Aggies, but they put up a stubborn resistance and succeeded in keeping Rose guessing much of the time, even in the second half.

The playing of the Rose team was not up to the standard, and the men seemed to have trouble in finding each other and locating the baskets, but finally won out, after giving the fans a real scare.

For the Aggies, the work of Bethune and Reese, in addition to the passing of all of the of the men, was the outstanding feature, while Hegarty, Carter and Larr featured for Rose.

Line-up and summary:

Rose (22).	Position.	Aggies (21).
Larr, Planque	F	Turner
Kline	F	Bethune
Barrett, Brown.		
Davison, Hegarty	C	Hammons
Trimble, Carter	G	Reese
Cox, Kingery	G	Loonye

Baskets—Planque (2), Hegarty (2), Carter (2), Larr, Kline, Brown, Barrett, Bethune (5), Turner (3), Hammons, Looney. Free Throws—Kline (1), Hegarty (1), Turner (1). Personal Fouls—Trimble (2), Larr, Reese (3), Bethune (2), Hammons, Turner. Referee—Brooks, Paris. Timekeeper, Hathaway. Time of Halves—20 minutes.

Rose 54, Franklin 25.

PUTTING up one of the prettiest games of the year, Rose defeated Franklin College on February 14th by the score of 54 to 25.

In this, as in most of the other games, Coach Gilbert used the second team part of the time, and there is no way of telling what the final score would have been had he allowed the first team to play the entire game. At the end of the first half Franklin was on the short end of a 33 to 7 count, but made a better showing during the second half.

The passing of Rose in the first half was fast and snappy, and so cleverly executed that the Franklin team was almost helpless. In the second half Rose was slow in getting started, but as soon as they hit the stride that made the score so large in the first half, Gilbert began to jerk the players and put substitutes in their places. The second team still had the best of the passing and succeeded in keeping the ball most of the time, but were not as successful as the first squad men in hitting the basket.

For Franklin, Abbott and Yeoman were the stars, but it would be hard to pick stars from the Rose five, as all of the men played well.

Line-up and summary:

Rose (54).	Position.	Franklin (25).
Planque, Brown, Kline.	F.....	Campbell, Nelp
Deming, Barrett, Larr.	F.....	Abbott Hamilton
Hegarty.....	C.....	Mullikin
Carter.....	G.....	Cooke
Kingery, Cox, Trimble.	G.....	Yeoman

Baskets—Hegarty (9), Planque (5), Deming (4), Carter (2), Kingery (2), Barrett (2), Larr, Mullikin (7), Abbott (2), Yeoman (2). Free Throws—Planque (4), Cooke (3). Personal Foul—Mullikin. Referee—Stump, Wabash. Timekeeper—Hathaway. Time of Halves—20 minutes.

AT a meeting of the intercollegiate football rules committee, held in New York on February 7, 1914, it was decided that hereafter coaches should be barred from the side lines. This was the most radical change in the rules adopted at the meeting, which was one of the shortest in the committee's history. Other changes were as follows:

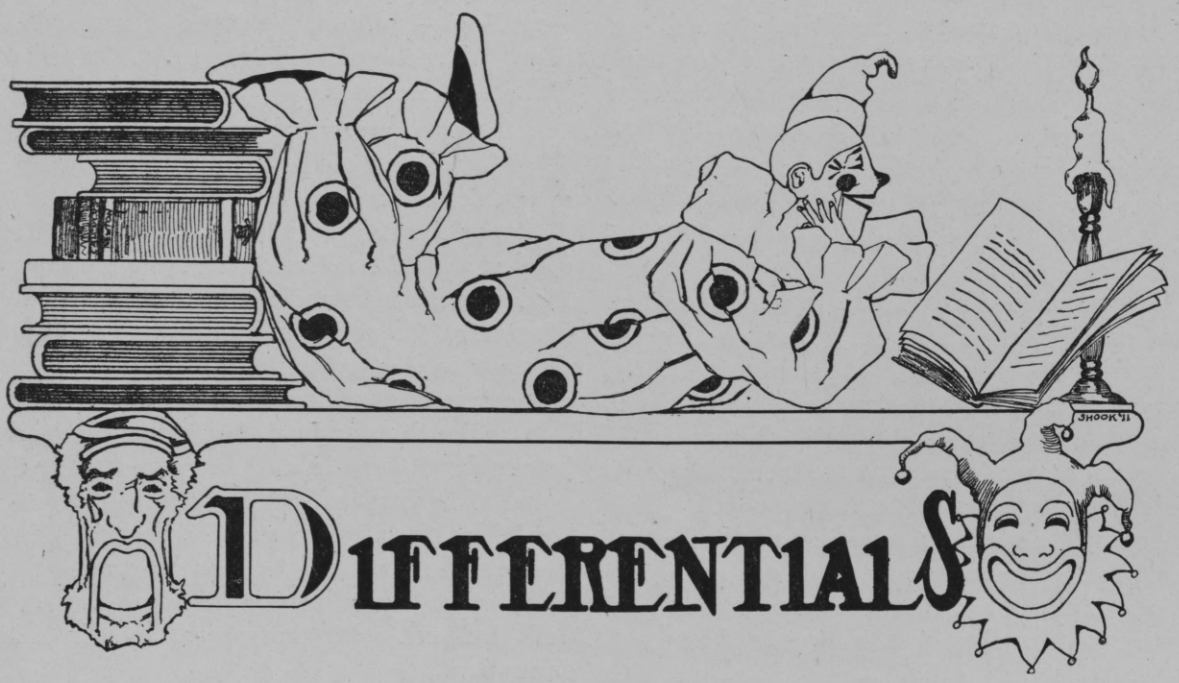
Intentional grounding of a forward pass will be penalized by a loss of ten yards from the point of scrimmage. When the ball from a freak kick hits a goal post and bounds back into the field the play is counted as a touchback.

After the teams line up, the team having the ball shall not enter the neutral zone in shift formation.

A player out of bounds when the ball is put in play penalizes his team by the loss of five yards. Under the old rule there was no penalty for this offense the first time it was committed.

The committee let it be optional with teams to decide whether they shall have a fourth official to be known as field judge, who shall have no specific duties of his own, but act as assistant to the referee and umpire.

The committee reached no decision regarding the question of distinguishing players in games by numbers. The members concluded to observe how this plan worked out next season, before making any recommendations.



Professor—"What is your name?"

Junior—"Bundy."

Professor—"Any relation to the photographer?"

Bundy—"None that I know of."

Professor—"And what is *your* name?"

Second Junior—"Sullivan."

Bundy—"Any relation to the prize-fighter?"

William Tell—"It's all nonsense about missing the apple. Why, I can hit it with my eyes shut every time.'

The Tyrant (doubtfully)—"You never can tell.'

Bum joke!

Instead of making her look like a peach, the new fashioned gowns cause women to resemble a sweet potato, small end down—*Ex.*

Dedicated to Prof. Sage.

He drinks soft drinks and he thinks soft thinks,
And he's pure as a lily, by Jinks!

An old priest admonished his flock that the art of dancing was following the devil. One of his young ladies, however, persisted in the amusement. One morning after a dance, he chanced to see her on the street, and said unfeelingly:

"Good morning, child of the devil."

"Good morning, father," she sweetly replied. —*Ex.*

Teacher—"What's your name, little boy?"

Boy—"The fella's call me Jimmie, but my maiden name is James."—*Ex.*

Cows may come and cows may go,
But bull goes on forever.

—*Exchange.*

Human Inconsistency.

A woman gets mad if she sees another woman wearing a hat like hers. A man won't wear a hat unless its just like the ones the other men are wearing.—*Ex.*

Mr. Sage (on street car)—"They ought to charge by weight on this line."

"Jo Jo" (with a hurt look)—"If they did, they wouldn't stop for you."

When Eve, with ever present mirth,
Perambulated on this earth,
She gazed at Adam's scant array,
(A fig leaf, two or three, they say),
And said, as only woman can;
"It's a good thing clothes don't make the man."
—*Exchange.*

"Mama, what's that stuck in papa's throat?"

Mother—That's papa's Adams apple.

Willie—And did he swallow it green?

Mother—Dont be grotesque, dear; papa wears a brass collar button.—*Cornell Widow.*

SLIGHTLY OFF.

Professor—Yes, and I understand that some of the boys have that picture called Easter Morn in their rooms.—*Ex.*

He—"I hear that they don't wear black or white shoes at the dances this winter."

She—"How's that?"

He—"Only tango."—*Illinois Siren.*

As they paddled along in a nook,
She said faintly, "Why, Percival, look!
In that oak, I declare—
I see mistletoe there!'—
And the crew fished them out with a hook.
—*Exchange.*

He—Did you know that turning down the gas saves matches?

She—No, but turning down the gas often makes matches.

Editor's Note—Turning on an electric light often causes sparking. Turning off a gas light causes an increase of pressure. An increase of pressure causes a lessening of the waste.—*Lehigh Burr.*

THIS WAY OUT.

She (tragically)—You know how impulsive I am. Can't you bear with me a little?

He—Well, I'll take a chance. I don't think the cop's lookin'.—*Ohio Sun Dial.*

"Waiter—hic—bring me a dish of prunes."

"Stewed, sir?"

"None of your dambizness!"—*Stanford Chaparral.*

A youth met a maid at the shore,
And he said: "You're the girl I adore.
I trust, yes, I do,
That I'll see more of you."
And she blushed, and he wondered what for.—*Ex.*

THE TYPO TRUST.

She held her sweet mouth up to him
And then remarked, to-wit:
"You may print a kiss on my lips, dear Jim,
But you must not publish it."
—*Boston Transcript.*

But in another moment Jim,
Unless we miss our guess,
Had gathered her form close to him
And rushed right off to press.
—*Youngstown Telegram.*

And after that, without a doubt,
Jim took a strong position,
Insisting that they should get out
An extra late edition.
—*Chicago Record-Herald.*

But James stopped pressing presently
And said he'd had enough,
When she confessed she'd "shopped around,
And this was "reprint stuff"!
—*Pacific Printer.*

James said he'd seen a line o' types
That had her beat a mile.
So he declined reprinting on lips so ripe,
And placed this "scoop?" on file.
—*By Jack Barrett, Star Reporter.*

The dairy maid pensively milked the goat,
And pouting, she paused to mutter:
"I wish, you brute, you would turn to milk,"
And the animal turned to butt er.—*Ex.*

"What makes you look so ill?"

"I'm just recovering from a painful operation."

"What was it?"

"The doctor just took ten bones" out of my hand."—*Ex.*

Pete—Say, Ignuts, where is the best place to hold the world's fair?

Ignuts—Aw! You can't get me.—Around the waist.—*Ex.*

"If you have a good umbrell,
Pass it on.
'Tisn't your's, you know, full well,
Pass it on.
If you know just where you got it,
From your recollection blot it,
Some wet day the owner'll spot it.
Pass it on!

—*Exchange.*

NEWS OF OTHER COLLEGES.

This is from the pen of the editor of *The Tartan* of the Carnegie School of Technology:

Drinking Among Freshmen in American Universities.

In all respects a man coming to college for his first year is more or less unsophisticated. His views of life must be adapted to conditions different from any he has previously been accustomed to; his mental horizon becomes broader, and at the same time his knowledge of his fellow-men begins to be enlarged. Necessarily it takes more or less time for this process of mental adjustment to complete itself, and it is during this period that the great majority of college students who go wrong meet their downfall.

Sometimes a first year man will get the idea that the proper way to celebrate a football victory and show his loyalty is to get gloriously drunk. Others believe that the ability to drink a glass of beer is a sign of true manhood. Of course the majority of the student body in any school, and especially here, do not hold these notions; nevertheless once in a while we run across some such idea.

A very good rule was recently adopted at Wisconsin by the student conference. This rule bars Freshmen from saloons for the whole of their first year. The upper classmen are to see to the enforcement of the rule, and any Freshman caught in a saloon is sent home at once. Of course the rule will be difficult of enforcement. It would be hard to police all the saloons in a small town, and in a larger city it would be doubly difficult. However, no one can doubt that the principle is right, and we hope to see a practical solution worked out at Wisconsin.

Understand, we do not mean that the entire Freshmen class become teetotalers; we do not even assert that it would be far better if they did. But by the end of the first year a man has regained his balance, and no matter what conditions he may be called upon to meet later on in his school career, he has learned from his first year's experience to keep himself always under control.

College Expense.

The student who spends more than $700 a year ought to be taken out of college and made to earn his own living. This was the opinion expressed by President Stryker, of Hamilton College, at a dinner of the alumni of that institution Saturday night at New York City. And the bit of advice offered by Senator Elihu Root was that young college men should not be dreaming of riches and motor cars and yachts.

"If I had my way I would put out of college every boy who spends more than $700 a year," President Stryker said. "He is doing himself no good and he is a bad example to others."

Prof. A. P. Saunders, of Hamilton, said that the faculty had come to realize that a college education was unnecessarily expensive. He

produced figures tending to show that $513 a year was ample to take a boy through college.—*Ex.*

Unpleasant Statistics.

Liquor costs more than books at Harvard, according to the 1913 estimate of the *Harvard University Register*, published by the student council. The bill for smokes is estimated at $98,225, and drinks cost $73,500, or over $2,000 more than is paid for books. Theater tickets, suppers after the show, and taxi fares amount to more than $200,000.—*Ex.*

In Congress a movement has been started to establish an educational institution to be known as the University of the United States. An appropriation of $500,000 has been made, and more are to follow. The idea is to make this university the do-all and end-all of educational possibilities in this country. A committee of the prominent educators in the United States has been appointed to perfect plans for this institution.—*Ex.*

DePauw Gets Gym.

Starts with $5,000 and Realizes on $100,000 Proposition.

The Board of Trustees of DePauw University at their semi-annual session in Indianapolis recently authorized the construction of a new gymnasium to cost not less than $100,000. DePauw's new gym is the result of a campaign started a short time ago, and carried on in a vigorous manner by the students, alumni, faculty of the institution and through the *DePauw Daily*. Starting with only $5,000 as a basis, the leaders launched a movement which at first appeared uncertain. The idea was quickly taken up by the factulty and alumni and at the meeting of the trustees a petition was presented. Little opposition was found in the way of the trustees; and the announcement came to the Methodist institution as a pleasant realization of their hopes.—*Ex.*

The University of Michigan has more living alumni than any other institution of learning in the United States. There are living today 22,000 men and women who have received degrees from that school. The living graduates of Harvard number a trifle more than 21,000, while Yale runs third with almost 18,000 living alumni.—*Ex.*

The Seniors at the University of Illinois are considering erecting as a class memorial, an electric score board on Illinois field, for scoring football and baseball games.—*Ex.*

Owing to the length of the trip, Notre Dame will not play the University of Texas next year in football. The Catholics have games scheduled with Yale, Carlisle and the Army.—*Ex.*

A course in boxing is to be installed at DePauw in connection with gymnasium work.—*Ex.*

Wisconsin.

The University of Wisconsin no longer enjoys the distinction of having two daily papers. *The Wisconsin Daily News*, after an existence of two years, has merged with the *Daily Cardinal*, which has been Wisconsins official organ for the past twenty-three years.—*Ex.*

According to an announcement made Monday by President Bryan, of the University of Indiana, the tango, fish walk, kitchen sink, etc., are barred.—*Ex.*

A negro has been selected as the class orator by the Harvard Senior class.—*Ex.*

West Point.

President Wilson is reported to have been shocked by brutal playing which cropped out in the Army-Navy game. So were several congressmen who threaten to bring the matter to the attention of their austere colleagues.—*Ex.*

Soccer is gaining popularity in Lafayette every day. It is not supported by the Athletic Association thus far and all coaching is done by students who have played the game before. —*Ex.*

The Junior Prom Committee at the University of Illinois bought over four hundred pounds of candy for their dance. This made over 10,000 pieces and left more than twenty pieces to each individual.—*Ex.*

MICHIGAN.

Four silver loving cups, donated by three alumni, will reward the most valuable player on the varsity football team for the next four years.—*Ex.*

High School "frats" were strongly condemned by delegates from thirty-two college fraternities, at the fifth annual meeting of the Inter-Fraternity Congress which met recently in New York City. Theta Nu Epsilon, a high school organization, came especially under the censorship of the congress.—*Ex.*

Prohibitionists have started a war on one of Ohio State's oldest school songs. The one verse they object to is as follows:

"And when we win the game
We'll buy a keg of booze,
And we'll drink to old Ohio
'Till we wobble in our shoes."

—*Exchange.*

According to a recent ruling, the board of administration would eliminate smoking on the campus or around the college buildings at Kansas University.—*Ex.*

ENGINEERS INDUSTRIOUS.

The engineers of the University of Nebraska have nearly completed a giant telescope. The barrel of this sky gun is twenty feet long and has twelve lenses.—*Ex.*

MINNESOTA.

Fifteen hundred students and alumni of Minnesota attended a banquet given in honor of the football team in the university armory.—*Ex.*

A movement is on to abolish student drinking at Princeton University. The Senior Council seems to be back of it. The Senior class has decided to rule out beer from the class dinner. The students living at the New Graduate College recently passed a resolution by a vote of 34 to 23, against the serving of liquor at public functions in the Graduate College. The faculty is taking every effort to discourage student drinking. A warning has been sent to saloon proprietors that the university will hold to strict account any who sell to minors.—*Ex.*

Judging from a recent communication sent the *M. I. T. Tech* all students at Boston Tech are not in favor of the plan to unite with Harvard.—*Ex.*

Harvard spent more than $35,000 in turning out its championship football team this year. The coaching staff was paid $15,000, the head coach alone receiving $8,500.—*Ex.*

It is estimated that in the United States $1,900,000 is annually spent on intercollegiate athletics, while scholastic athletics caused an expenditure of $71,000.—*Ex.*

The DePauw University faculty has voted favorably for the installation of a chapter of Sigma Delta Psi at that institution.—*Ex.*

Oxford University has decided to send a relay team to compete in the annual relay carnival to be held in April at the University of Pennsylvania.—*Ex.*

In Texas they have a coach for soccer and the game is so popular that the *Daily Texan* is able to give out the "dope" on players and positions. —*Ex.*

"Flunkers" to Pay More at Cornell University.

The Cornell faculty is causing much excitement among students and receiving much approving comment from the press by a consideration of additional charges for repeated courses and make up work. "Flunkers" and slow students would thus be required to pay more heavily for the additional time which they claim from their professors. The discussion has already acted as a stimulus for higher scholarship.—*Ex.*

Miami University is determined to have class distinction. Gray and green bull-dog caps have been ordered for the men of '17. Moreover it has been proposed that the men of the Senior class carry canes in order to augment class distinction.—*Ex.*

Never has America known such a college year. The University of Pennsylvania, with the largest enrollment in its history, the whole number going above 5,000; Princeton the largest entering class on record; Swarthmore unable to accommodate all applicants; Cornell with the largest student body it has ever known, its combined registration reaching 6,500—these and other universities and colleges East and West have all moved to new totals, while secondary schools have the same story.—*Ex.*

Freshmen of Utah University, who painted their numerals on a big boulder that is found on the Utah campus, were tried before the Student Council. To right the misdemeanor the "kiddies" must scrub off every vestige of the numerals and apply the university colors. Besides this the Freshmen class must apologize in public to the student body.—*Ex.*

WITH this issue of THE TECHNIC the Modulus, published by the Class of 1915, comes before us, and probably should have a word in these columns.

It is 10¼x11½, bound in stiff board backs covered by imitation Morocco leather, and contains 216 pages exclusive of advertisements.

As Rose is purely a technical school, very little time is spent in literary productions, and so the book is mostly a picture story of the events which have occurred during the past two years.

We have two main criticisms to make of the book. First, the apparent relative importance of the Junior and Senior classes as brought out in the book. Of course we appreciate the fact that it is a Junior publication, but still it seems to us that in all justice to the Senior class, which is the graduating class, they should be given at least as much space and as large and as good pictures as the Juniors.

Our second criticism is the large amount of space devoted to roasts, etc., of a few individuals. One of the editors recently defended this fault by saying that when they had such a very good chance to hand it to these individuals they could scarcely keep from doing so. We appreciate this, too, but the fault is that while quite a few may appreciate these articles, a large percentage will not understand them at all, and thus will not apprceiate them.

However, as a whole, the book is an excellent one, and the Junior class, as a whole, and especially those who did the work, are to be commended on their work. The price of the Modulus is $2.50, and any student who fails to buy one is certainly missing one of the best records of the school life in Rose that he could possibly obtain.

THE Journal of the Association of Engineering Societies for January contains papers on "The Status of the Engineer," by Edward E. Wall, "Protective Paints and Pigments" by D. F. Leary, and "The Testing of Coal for Purchase" by J. M. Goldman. Several discussions are also given on each of these papers.

THE Carnegie Steel Company has recently gotten out a revised edition of their handbook, which is far better in many respects than most of the steel company hand-books. It is 5x7½ inches, and is bound in flexible Morocco leather of very good quality, with the name, "Pocket Companion, Carnegie Steel Company, Pittsburg, Pa.," stamped in gold on the cover. It contains 400 pages, and in addition to the regular tables contains Standard Specifications of the American Society for testing materials for steel of all kinds, tables of deformed reinforcement bars, formulas and theory for reinforced concrete beams, stresses in roof trusses and other tables, and information not generally found in books of this nature. The book is highly recommended to all users of hand-books.

THE Proceedings of the American Society of Civil Engineers for January contains papers on The Grouted Cut-off for the Estacada Dam in Oregon by Harold A. Rands, Assoc. M. Am. Soc. C. E.; The Diversion of Irrigating Water from Arizona Streams by A. L. Harris, Assoc. M. Am. Soc. C. E., and Steel Stresses in Flat Slabs by H. T. Eddy. It also contains discussions on papers that have appeared before on Modern Pier Construction in New York Harbor, Flood Flows, Concrete Bridges, The Effect of Saturation on the Strength of Concrete Measurement of the Flow of Streams by Approved Forms of Wires with New Formulas and Diagrams, Topographical Surveys Made by the American Section of the International Boundary Commission, United States and Mexico, Storage to be Provided in Impounding Reservoirs for Municipal Water Supply, The Depreciation of Public Utility Properties as Affecting Their Valuation and Fair Returns, Stresses in Wedge-shaped Reindforced Concrete Beams and Painting Structural Steel.

THE Journal of Applied Science of the University of Toronto, Canada, for January contains technical articles on "Evolution in the Art of Building," "The Corrosion of Iron and Steel," and "Electric Smelting of Iron Ore in Canada."

THE engineering article in The Yellow Jacket of Georgia Tech for February is an article on Depreciation by E. C. Gruen, M. E. (Cornell). The following table is taken from this article:

	Life Years	Scrap Value
Brick or steel frame building.....	30	10%
Wooden buildings	25	10%
Steam engines	20	10%
Gas engines	12	5%
Electric motors	20	10%
Heavy machine tools	25	10%
Light machine tools	18	10%
Belting	15	0

THE issue of the Railway Age Gazette for January 16 contains the index of the Fifty-fifth Quarto Volume, from July 1, 1913, to December 31, 1913. The leading article in the issue of February 6 is the article on "Dining Cars for the Burlington." The Chicago, Burlington and Quincy has drawn up specifications for different types of steel passenger train cars, using the government specifications for postal cars as a basis. This article describes the new dining car, which is the first to be built under these specifications. Other articles of interest are "Internal Transverse Cracks and Fissures in Rails," and an article on the Remarkable Railway Progress in Canada.

The issue of January 23 contains abstracts of papers read at the tenth annual meeting of the American Wood Preservers' convention, held in New Orleans, January 20, 21 and 22.

THE leading articles in the Engineering Magazine for January are, "American Trade with China"—Its Possibilities and Limitations—by Lewis R. Freeman, "Introducing Efficiency Methods"—What the Engineer Does and How He Does It—by C. E. Knoeppel, and the last of a series of articles on the "Possibilities in the Use of the Motor Truck,' by R. W. Hutchinson, and "Cyaniding With Compressed Air"—High Extraction Processes for Gold and Silver—by Herbert A. Magraw. It also contains the fifth article of a series of articles on "Air Compressors and Compressed Air," by Robert L. Streeter. The article this month is on "Various Uses of Compressed Air."

RAILWAY Engineering and Maintenance of Way for January contains an account of the design and construction of the Ludlow avenue viaduct of the Baltimore and Ohio Southwestern Railroad at Cincinnati, Ohio, and also an account of the Langwies viaduct, Chur-Amosa Ry., Langwies, Switzerland. Both articles are accompanied by drawings, plans, and pictures taken during the process of construction.

THE Railway Master Mechanic for January contains an article on "Machine Formers for Locomotive and Car Parts," by Walter R. Hedeman, and is accompanied by detailed drawings of dies for forming different parts. There is also an article on "Locomotive Boiler Inspection" by Frank McManamy, chief inspector, Division of Locomotive Inspection, Interstate Commerce Commission. This article is illustrated by several pictures showing the effect of boiler explosions. Two articles, one on the new locomotive, and the other on new cars for the Grand Trunk Railway, are also to be found in this issue.

THE last four issues of Power contain articles as follows:

JANUARY 20. An article on the Plant of the Bellevue and Allied Hospitals of New York City, the largest institution of its kind in the world, The Stevens Creek Hydroelectric Development which transmits 31,000 H. P. to Augusta, Ga., and the Parr Shoals Development which supplies 29,000 H. P. to Columbia, S. C.

JANUARY 27. "Talluh Falls Hydroelectric Development." This plant, eighty miles from Atlanta, Ga., operates with a 600 foot head, the highest in the South. The five turbines are the highest powered in the United States, having developed 18,600 H. P. under test. Electrical energy is generated at 6,600 volts, and sent out on the line at 110,000 volts to an open air transformer station at Atlanta, the largest of its kind in the world.

FEBRUARY 3. "Plant of the Worcester Salt Co.," Cost of Compressing Air by Electricity and Oil Burning Furnace Design.

FEBRUARY 10. Model Mixed-Flow Steam Turbine, Concrete Pipe Conduits, Efficiency of Rope Driving and Operating Troubles When Burning Oil.

Parts VI and VII of the Induction Motor run in these four issues, and the Engineers Study Course in Trigonometry is concluded in the February 3 issue, and the Slide Rule taken up in that of February 10th.

THE Proceedings of the Engineers Club of Philadelphia for January contains one especially interesting paper on "The Limitations of Mathematical Theory Applied to Engineering," by W. G. Button. It brings out the value of mathematics in engineering, and also shows the practical limits of the subject. It is followed by several very interesting discussions by different engineers, among whom is John C. Troutwine, Jr. Other papers of interest are "Colossal Waste Due to Bad Municipal Engineering" by Bernard J. Newman, "The Hudson River Crossing of the Catskill Aqueduct" by Ralph N. Wheeler, and "Concrete Roadways" by Lewis R. Ferguson.

THE Industrial Engineering and Engineering Digest for January contains articles on "Safeguarding the Factory Against Fire," under which is included articles on The Maintenance of Automatic Sprinklers, The Construction and Maintenance of Fire Tanks and The Pump Requirements for Fire Protection.

TRANSPORTATION PROBLEMS IN NEW YORK HARBOR

THE project for the improvement of the East river is the largest and most far-reaching ever sanctioned by the War Department east of Mississippi river. It calls for a channel 35 ft. deep through the entire East river, including Hell Gate, and into Long Island Sound; a 30 ft. acess to East river wharves on both sides of the river as far north as the Queensboro bridge; the removal of shoals and reefs in the East river, and a channel 300 ft. wide and 18 ft. deep through the Harlem or Bronx Kills—at a total cost of $15,300,000. The project has the approval of the Mayor, the Dock Commissioner, the Public Service Commission, the army engineers and the Citizens' New York Improvement Committee. There can be no question as to the necessity in this port, where the commerce is increasing nearly four

times as rapidly as the wharfage facilities, nor that public sentiment unanimously supports the constituted authorities in their effort to put through a comprehensive scheme for the development of the port.

The East river scheme is but a part of a vast undertaking. With it is involved the question of the city's obtaining control of all docks in Manhattan and the development of a far-reaching plan for the retail distribution of freight. The relocation of the New York Central yards along the North River is also involved. Indeed, the whole enterprise is one of the greatest magnitude, and of particular significance just at this time because of the approaching completion of the 1,000-ton barge canal from Buffalo to the Hudson river.

The new 1,000-foot piers in the Desbrosses street section have been begun, and also a huge dry dock at Bay Ridge. All mud banks in the river are to be removed, so that access may be had to both sides of the waterway by the largest vessels. The state of New York has already appropriated a million dollars to aid in straightening the Harlem ship canal at Spuyten Duyvil. The city is going to acquire connecting railroads along the Brooklyn shore front, operating them in conjunction with the pier terminals.

New York is bestirring itself in this matter not one moment too soon. A great advance has been made by the new Boston Port Commissioners. A monster dry dock is under way, piers are being reclaimed for the city, and three or four new steamship lines have been opened up and a local transfer charge upon shippers of freight removed. In Philadelphia, too, mighty plans are under way for the development of South Philadelphia, which will make a magnificent port of Philadelphia. When the Aquitania lands here next spring she will project 75 feet beyond her pier into the river.—*Railway Age-Gazette.*

A NEW RAILROAD CONNECTION WITH JERUSALEM

AT the present time the greater part of the commerce to the region around Jerusalem passes through Jaffa. This port is a very inferior one, and only small coasting vessels can penetrate within the belt of dangerous rocks that encircles it. Large steamers and other ships have to remain in the open sea a mile or two from shore and have their passengers and merchandise landed in large surf boats. Sometimes in bad weather even this is impossible, and during winter there are periods of a week at a time when no conection at all can be made with the main land. Some time ago it was planned to establish a new port at Jaffa. It is only recently, however, that offers were made to obtain the concession. A French company, the Jaffa-Jerusalem Company, now expects to commence operations next summer. The work on the harbor will cost about $5,000,000. There is also a railway concession. A new line will be built from Rayak, on the Beirut-Damascus line to Lydda, on the Jaffa-Jerusalem line. This line will develop the rich plains of Esdraelon and Sharon, and it will be possible to journey from Jerusalem to Constantinople by railway via the Aleppo branch of the Baghdad line. Jerusalem's position will thus be greatly improved.—*Railway Age Gazette.*

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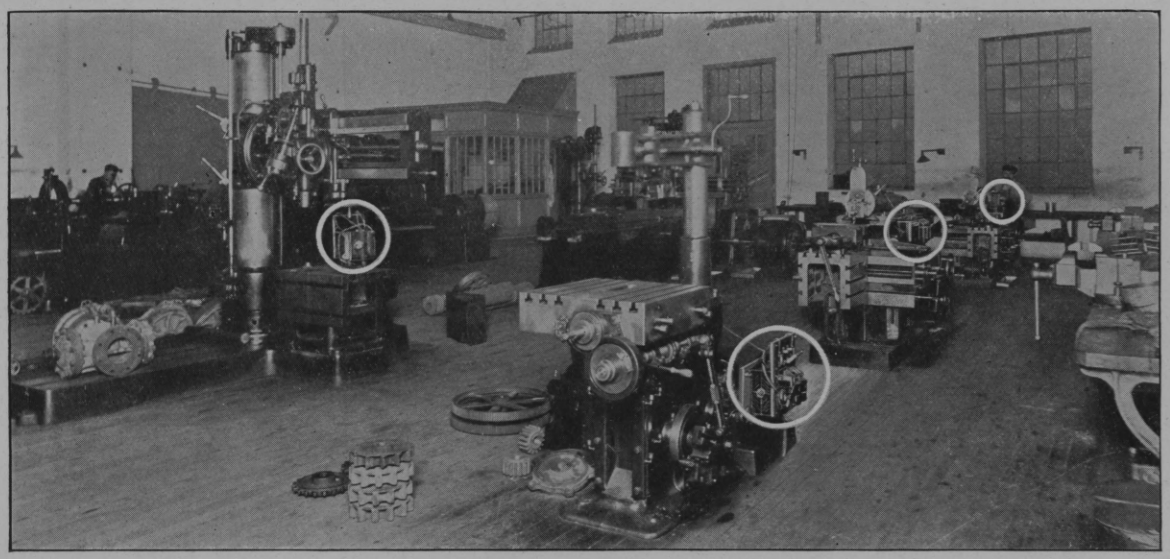

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