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## Rose-Hulman Scholar

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Spring 4-1894

### Volume 3- Issue 7- April, 1894

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#### Recommended Citation

Rose Thorn Staff, "Volume 3- Issue 7- April, 1894" (1894). *The Rose Thorn Archive*. 1067.

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# THE ROSE TECHNIC.

VOL. III.

Terre Haute, Ind., April, 1894.

NO. 7.

## THE ROSE TECHNIC.

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One year, \$1.00. Single Copies, 15 Cents.

*Issued Monthly at Rose Polytechnic Institute.*

Entered at the Post Office, Terre Haute, Ind., as second-class mail matter.

THE *Engineering Magazine* has recognized one of the signs of the times in the following words, of especial interest to us who hope to take a place amongst those who are working the changes outlined:

"One of the noticeable features due to the continual introduction of mechanical appliances into every-day life is the increasing popular interest in mechanical subjects shown by many people who formerly would have paid little notice to such matters. Nearly every issue of the popular magazines contains matter which a few years ago would have been considered suitable only for strictly technical journals, while the publication of a magazine devoted to engineering and yet intended for general as well as professional readers would have been out of the question. It is not too much to predict that the next few years will witness a rapid advance in popular interest in mechanical subjects, due not only to the existing causes, but also to the constantly increasing introduction of systems of distribution of power. It is said that the late Professor Clerk Maxwell, when he first heard of the discovery of the reversibility of the Gramme dynamo and the consequent pos-

sibility of using it both as a generator and a motor, said it was the greatest discovery of the century, evidently perceiving the revolution it would work in the entire practice of the generation and use of power. Not only may the small manufacturer ultimately compete with the great owner in the economy of cost of power, but the individual workman may come again to the position from which the concentration of power in the factory displaced him; while not very far ahead may dimly be seen the sociological changes which the general use of the forces of nature by all, as part of the general right of existence, must surely bring to pass. Meanwhile the education of the great public in matters mechanical will go on quietly, but surely and rapidly, and in the light of what has been done it may well be worth while to watch thoughtfully for changes, the certainty of which is admitted and the manner of which is rapidly being revealed."

\* \* \*

THE first game of the Inter-Collegiate series while not resulting exactly as we should like to have seen it, was by no means without comfort to the friends of the team. Unexpected strength was developed in several instances, and confidence in the ability of our men to play good ball is considerably increased. Following the established custom of several years R. P. I. was weak, exceedingly weak, at the bat; however, the perplexing erratic curves of the gentleman from DePauw may be offered as excuse. It is to be hoped that the bat may soon become an instrument for effective work in the hands of our men, then we may look for satisfactory scores.

\* \* \*

ANNOUNCEMENT is made of the election of Mr. David Ingle, '97, to the Board of Editors of the *TECHNIC*. Mr. Ingle takes up work in the Local Department, and we trust that he may secure that personal aid from all which is especially essential to the success of a local editor's work.

THE great project of harnessing Niagara Falls, as it has been called, is now nearing that stage when one may begin to look for results. Long as it has been realized that here was a mighty giant capable of well-nigh limitless exertion, the very greatness of its powers appeared almost to frighten man, and the monster roared and tossed and plunged at its own free will. Not so longer. The shackles are nearly forged that are to enslave a portion of this enormous strength, and the day is nearing when the proud creature shall have to exert all its powerful energy in useful work for mankind. Sentiment will oppose this in those who have witnessed its unparalleled grandeur, who have trembled before its thunders only the next instant to feel the æsthetic ecstasy of the beauty of its glistening clouds of mist making myriad rainbows in the sunlight. These cannot be blamed if they turn away not wishing to contemplate what seems to them a sacrilege. But thus it ever was. Were not the primeval forests and broad, rolling prairies on the whole more grand, more beautiful, before man settled in their midst and trained them to minister to his needs? So with great Niagara. Its day of work has come and we cannot but be interested in the results of its powers.

\* \* \*

IN the introduction to his valuable work on quantitative chemical analysis, Dr. Fresenius says, “\* \* But even the possession of the greatest practical skill in manipulation, joined to a thorough theoretical knowledge, will still prove insufficient to insure a successful pursuit of quantitative researches, unless also combined with a *sincere love of truth and a firm determination to accept none but thoroughly confirmed results.*” What is there said of chemistry is equally true of all scientific work and is fundamental to all the great progress that has been made through the medium of scientific research. Without this sincere love of truth and determination that results be thoroughly confirmed many an exception to old, apparently established laws would have been passed by as being the things necessary to “prove the rule.” Such reasoning does not prevail in science; when

exceptions occur there are causes behind them. These causes the lover of truth investigates and thus have resulted most startling discoveries, the old laws are overturned, and newer and more correct ideas come in. Fresenius has named the three essentials for scientific work in the ascending scale of importance and that no one may mistake this he italicises the last; he who possesses not this will find his attainments insufficient. Too many institutions and too many instructors appear to lose sight of this fact in their zeal to instil in their students the first two attributes, the show points. A good teacher takes care of all three, but particularly impresses the fact that truth is what is sought. Of little value is laboratory work if this is forgotten. One might better accept some other person's results and save his own time. Skill in manipulation will perhaps come, but this is too apt also to be extended to the figures which stand for results. When a student realizes that an unconfirmed good result is not enough, and in case of poor ones that nature's laws never fail to operate unless for cause; when he intelligently goes about to seek this cause and finally when he realizes that man's laws are not necessarily nature's he has attained the great end of true scientific instruction, even though his note book does not fill up nearly so rapidly as that of some class-mate.

\* \* \*

AT this eventful season of the school year, when proficient athletes are in such demand, it is to be presumed that each one is making his greatest efforts along chosen lines. This is most praiseworthy, but a word of caution seems appropriate, particularly with reference to candidates for the ball team. Each student has his allotted amount of school work to do, for the neglect of which no excuse will be accepted; mention is rarely, if ever, made of this fact, but it is an unwritten law and is enforced to the last particular. To participate in any favorite recreation means extra work for the person concerned. The man who performs his school work can do just as much in connection with regular athletic exercise, and ordinarily, can do more if he will, but no results justify a neglect of school duties.

THE "Industrial Army" proved quite a drawing card with the average Rose man in his Sunday walk recently, and as those who visited the camp can attest, was fully as great an attraction for a large part of Terre Haute and surrounding country. Just what there was about the presence of a hundred and fifty or so plain, ordinary, unemployed tramping men to draw visitors by the thousands is likely what these same men wondered about, and certainly many visitors found themselves indulging in this thought. Nevertheless the crowds were there and this fact was probably published broadcast, people in the next city will naturally have their curiosity aroused and so on, and it seems that here we have a plausible reason for the measure of success that has attended these movements so far. Publicity is essential and notoriety courted by the leaders, and both have been freely obtained. That the unsound policies advocated will come to naught there is little doubt, yet the fact that large bodies of men are to-day marching toward the capital of

the country to demand legislation in their behalf furnishes food for serious thought.

\* \* \*

IT is to be hoped that each Rose man is making his plans such that Tuesday, May 29th, will be passed in Indianapolis. Field day is our especial pet and we should be present in large numbers to celebrate it.

\* \* \*

TREE-PLANTING upon the campus has been continued during the last few years with commendable zeal. Not only trees, but flowering shrubs have been set out of late, and the Rose man who returns about commencement time may soon expect to find a bower of blossoming beauty, while in a decade the face of nature occupied by the south campus of R. P. I. will have so changed that behind a sylvan screen some of the architectural defects of the academic building will be hidden. It occurs to us that perhaps the mathematical precision, which appears to be the chief feature of the landscape gardening, is intended to be emblematic of the Institute.

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## UNITS AND CONSTANTS.

BY PROFESSOR C. L. MEES.

The confusion in units in both physical and engineering formula seems still to prevail, if we are to judge from their vague use in journals, original contributions, text books, and even reference works of recent date. We shall probably have to be patient for a long time to come, before traditions in methods of measurement will have passed away, and instead of being merely leavened by more convenient and precise methods, will be displaced by them. It is not the abandonment of many practically used and fairly understood units which I would urge so much, but the accurate use and precise definition of such units, and above all, consistency in their

use. It is the "mixing up," the combination of entirely unrelated units in discussions and formulas, the attempt to justify such use and make them appear logical by equating them and then interpreting, which has caused so much mischief and led to so much error. To guard against these I desire to emphasize by a brief review the principles underlying the use of units and their proper construction.

All measurements may be expressed by a ratio. This means that any quantity must be compared with a selected quantity of the same kind so that the ratio is expressed by a numerical value. If then  $y$  represent a quantity,  $u$  the unit, the ratio



$\frac{y}{u}$  would be the measure;  $\frac{y}{u} = n$ , where  $n$  is the numerical value of  $y$ . As  $y$  is to be measured in terms of  $u$ , we must have a definite value for  $u$ ; all that is required then is to have a definite quantity of the same kind as the thing to be measured for comparison. If we consider for a moment the infinite variety of things to be measured we see that to establish as many different  $u$ 's, independent of one another, as we may have different kinds of  $y$  would be endless. If, however, we can define one value of  $u$  in terms of another the problem becomes much simpler. Thus we may have derived units, that is a unit of one kind defined in terms of another. In all practical systems of measurement as perfected this is now done. According to this practice then we will call fundamental units, several independently fixed units  $u$ , which by combination or otherwise may be used to derive units or  $u'$ - $u''$ - $u'''$ , &c., of a kind similar to the quantity to be measured, and which

will enable us to define the ratio  $\frac{y}{u}, \frac{y'}{u'}, \frac{y''}{u''},$  &c., as simple numerical values. The first question then is what shall be our fundamental units? Here there is a wide range from which to choose, the one limitation being that the fundamental units be of a kind—material—or property which is unchangeable so that the unit once formed or made shall be permanent. Others suggest themselves, as ease of reproduction and comparison and availability. Theoretically it has been shown that three fundamental units are all that are required, and that choice would suggest itself at once as best, which would make the unit based upon some definite property or condition of matter, rather than upon relations. The choice made by Gauss, who first fully discussed and developed a consistent system of unit, was, a definite mass, a definite length, and a definite time. Others might have been selected, as

|                              |                      |
|------------------------------|----------------------|
| a definite mass,             | a definite force.    |
| a definite amount of energy, | a definite length.   |
| a definite density,          | a definite time, &c. |

In the universal gravitation system as used in astronomical work the units of force and mass

may be defined in the unit of length and time chosen arbitrarily. Such systems are known as absolute systems, that is where some absolute or essential property of matter or universal relation of physical magnitude enters into the character of the units as derived. Having thus selected the fundamental units, length, mass, and time, what are the laws of derivation and variation of derived units. Thus an area is described by a line moving along a line, the value of the area therefore depending upon the length of line moving and length through which it has moved. Let the line moving have a numerical value of the unit 1 and let it move along unit 1, then the area is perfectly definite and we may call it unit area. We have thus derived a unit and would form it by the process above indicated, namely,  $1 \times 1 = A$  both 1's having equal values  $= l^2$ , or we may say the unit of area is measured by the product of 1 into  $1 = l^2$ . This is called a dimensional equation expressing the dimension of the unit area in terms of  $l$ , a fundamental unit. We could continue perhaps profitably with other derivations, but will do so only in the way of illustration of a few other principles. In all dynamical discussions, we have principally to do with the effects of force in production of motion, hence the dynamical force unit will naturally be defined in such terms. Motion is always the result of action of force, the measure of force is the production of momentum in time. Two forces are equal if they produce equal quantities of motion or momentum in equal times, but quantity of motion will depend upon the amount of matter moving as well as the rate or velocity of motion, hence the definition of a force unit dynamically would be that force which will produce unit velocity in unit mass in unit time, or  $f = \frac{m v}{t}$  but the velocity unit has di-

mension  $\frac{1}{t}$  therefore the dimension of force in fundamental units is  $f = \frac{ml}{t^2}$ . Thus the system

is consistent and logical, whatever may be the magnitudes of the units  $m$ ,  $l$ , and  $t$ . If we determine a ratio between the magnitudes of the units

themselves in different systems we can readily convert the numerical value of  $F$  based upon one set of units into the numerical value of  $F$  in another, the ratio being merely a converting factor, and  $F$  in intrinsic value will equal  $F'$ . It may be well to illustrate the process: If  $V$  represent a certain concrete velocity,  $L$  a certain length,  $T$  a certain time,  $v, l, t$  the units, then the numerical values of  $V, L$ , and  $T$  will be  $\frac{V}{v}, \frac{L}{l}$  and  $\frac{T}{t}$

but from the dimension of velocity we have that the numerical value of velocity is equal to a numerical value of a length divided by a numerical value of a time. Hence, in our system

$\frac{V}{v} = \frac{L}{l} \times \frac{t}{T}$ , this shows us the relation of the change of units to change in numerical values, that is  $\frac{V}{v}$  varies directly as the unit of time and

inversely as the unit of length. Thus if we express a velocity in feet per second, what will be the converting factor to express it in miles per hour. If we make  $V$  = miles per hour,  $v$  = feet per second, then  $L$  = miles,  $T$  = hours,  $l$  = feet,

and  $t$  = seconds, our equation  $\frac{V}{v} = \frac{L}{l} \times \frac{t}{T}$  be-

comes  $\frac{\text{miles per hour}}{\text{feet per second}} = \frac{5280}{1} \times \frac{1}{3600}$  or the

converting factor of  $\frac{V}{v} = \frac{1}{3600}$ .

If we know the ratios of the magnitudes of fundamental units, the derived units can easily be converted, such conversion factors being nothing but a ratio between magnitudes of the same kind but based on different units.

Let us consider one or two systems not as logical as the above. Thus, in ordinary engineering practice more than the three fundamental units are employed; we find a force unit not derived in the manner indicated above from the dynamical consideration, but from the static or stress condition; it is not surprising that such should be the case, for in general, it is this condition engineers have mainly to deal with, and in our everyday life we appreciate the magnitudes of forces rather by their

pulls and pushes than by their production of momentum. Thus we have a terrestrial gravitation unit of force vaguely defined and of many names—it being called pound, pound pressure, pound weight, &c., defined as the force between the earth and the unit mass of one pound due to gravitation. This unit is not defined with scientific accuracy, for the force of gravitation varies at different places. It therefore lacks one of the essential qualifications of a precise unit. For practical engineering purposes these small differences may be neglected, the greatest misfortune being that there is no definiteness in naming this unit. The term pound being used both to indicate unit mass and the unit force, care in expression will enable one to indicate in what sense the term is used. Less allowable is the confusion arising in the use of the terms weight and mass. Though by clever historic arguments and references the use of the term weight to indicate both unit mass and unit force may be justified, it certainly does not seem justified at present. The term weight should be applied only to indicate the force as defined or rather agreed upon as the average attraction between the mass of one pound and the earth. There is another gravitation system which is absolute in its character that used largely in astronomical calculation where the unit force is that force which, acting for a unit of time, produces in unit mass unit velocity and again defines unit mass in terms of force by stating that two quantities equal to it are placed at unit distance apart the force shall be unity. This method we will not extend but merely refer to it as showing how two units are sufficient for our purpose. To return to the terrestrial gravitation system, it is essentially a static system if we deal with it in dynamical problems it will not fit into the absolute system as constructed dynamically. It becomes necessary then to use a converting factor. This will be a mere numerical quantity or constant for conversion from the one system to another. The forgetting of this, together with the unwise use of the term weight, causes many students and even engineers trouble. To illustrate this: the questions are often stated what energy is stored in a cannon ball weighing 22

pounds and moving with a velocity of 1,000 feet per second. This question is a purely dynamical one, as we have to deal with the problem of a moving mass. Though the language speaking of the cannon ball as weighing 1,000 pounds is correct, yet it is perhaps unwise, for it is the mass we want, by the definition of the terrestrial gravitation system. The unit mass is attracted by the earth with unit force and we make use of this force to determine the mass; so we would say the mass of the ball is 20 lbs., its velocity is 1,000 ft., hence the energy =  $\frac{M V^2}{2} = \frac{20 \times 1,000^2}{2}$  and we obtain E in dynamical units. We therefore must find the results according to J. J. Thomson's nomenclature in foot poundals. Suppose now we want the result in gravitation or static system, we have to compare the two units. In both systems  $e = Fs$  the equivalent of  $\frac{M V^2}{2}$ . In the absolute system  $f = ma$ , in the gravitation system  $F = m \ 32a$ , hence the relation between the units e in the gravitation system and e' in the absolute

system will  $\frac{e}{e'} = \frac{Fs}{E's} = \frac{Ma}{M \ 32a}$ , that is the gravitation unit is 32 times the value of the absolute unit, hence the numerical value of F in the gravitation system is  $\frac{1}{32}$  of that in the absolute system. If, therefore, the energy is to be expressed in foot pounds, the gravitational unit we will have to multiply by the converting factor  $\frac{1}{32}$ . It is in problems such as

this that confusion is so common. There are of few quantities in physical measurement which can not easily be measured in the absolute system for which independent units are still used. Such an one is temperature, though on the absolute scale as suggested by Thomson, dimensions may be assigned. In electrical units we are more fortunate, as they are nearly all now expressed in dimensional equations. The discussion of these and some exceedingly interesting problems we cannot undertake in this communication.

## ALUMNI DEPARTMENT.

The announcement has just been made of the marriage of Mr. Hubert H. Holding, of the class of '89, to Miss Sarah Belle Ausherman, of Terre Haute. The marriage occurred on the evening of Wednesday, April 25th, and was, in the customary phraseology, a very quiet affair. Mr. and Mrs. Holding left at once for Cleveland, Mr. Holding being expert for the Cleveland office of the General Electric Co. They will be at home after May 1st, at No. 962 Logan avenue, Cleveland, Ohio. A number of telegrams were received from electrical friends of the groom, conveying, in a more or less technical and very amusing manner, all sorts of good wishes and congratulations, to which THE TECHNIC wishes to add its share.

S. B. Tinsley '92, visited the Institute and Terre Haute friends for a few days last week while en route for Alaska, where he will continue with the work on International Boundary which was commenced about a year ago. During the winter and spring he has been in Washington with the exception of the time when with G. R. Putnam '90, he made trips to Boston and Ithaca, N. Y., to determine the constant of gravitation at those points.

A Johns Hopkins University bulletin mentions the name of R. L. Wilson '92, amongst those who have won honors. Mr. Wilson has been awarded a fellowship.

W. A. Layman '92, spent Easter in Terre Haute.



In a write up in an Indianapolis paper, of some of the new buildings being erected in that city, prominent place was given to the designs of Mr. Herbert W. Foltz, '89. Cuts of business block and two dwellings, planned by Mr. Foltz, were shown, and were worthy examples of the architect's skill.

B. O. Tippy '92, has been elected a member of the Michigan Gas Association.

T. D. Boyles '92, spent a few days in the city recently visiting friends.

The following partial list of the addresses of '93 men and those of previous classes who have recently changed their addresses, may be of interest:

Class of '93—

M. E. Becker, with Connersville Blower Co., draughtsman.

A. H. Klotz, with Geo. Feick, Contractor and Builder, Sandusky, Ohio.

C. E. Albert, with Branahan, Gert & Co., Contractors, Cincinnati, Ohio.

James Dale, with Cord Electric Motor and Dynamo Co., Cincinnati, Ohio.

C. G. Wenzel, Instructor in Mech. Drawing and Machine work, Toledo Manual Training School, Toledo, Ohio.

W. H. Waite, with Vulcan Iron Works Co., Toledo, Ohio.

Class of '92—

W. Hussey, of firm of Condit & Hussey, 159 La Salle st., Chicago, Ill.

Sigmund Frank, with Geo. E. Lloyd & Co., Manf'rs of Machinery, Canal and Jackson sts., Chicago, Ill.

B. R. Putnam, Chemist, Illinois Steel Co., So. Chicago, Ill.

A. W. Wicks, with Hyde Park Electric Light Co., Chicago, Ill.

R. L. Wilson, graduate student Johns Hopkins University, Baltimore, Md.

J. Charles Young, graduate student Sibley College, Cornell University, N. Y.

Class of '91—

V. J. Gillett, with Cameron & Gillett, Electrical Contractors, Detroit Mich.

J. D. Harper, with Harper & Harper, Civil and Mining Eng'rs, Durango, Colo.

Other classes—

Harry D. Harney, '88, Ass't Eng'r Fort Wayne Electric Co., Fort Wayne, Ind.

H. S. Putnam, '86, Manager American Carbon Co., Noblesville, Ind.

S. S. Early '85, Gen. Mang'r and Treas. Terre Haute Shovel and Tool Co.

## ATHLETIC DEPARTMENT.

### DEPAUW 5. ROSE 2.

The first ball game of the Inter-Collegiate series was played the 21st inst., and the result is indicated above. It was a game which showed to good advantage the playing of every member of the home team. For DePauw, the battery work of Phillipps and Bearse was so effective that the field had little practice. If the home team plays up to the standard of this game and continues with

the regular practice the school will have no occasion to be ashamed of their playing. Phillipps held Rose down to one safe hit and struck out sixteen men. The Poly nine appeared well in the role of base running, with a total of nine stolen bases. Brown's catch in center field was an important feature of the game. The fact that five members of the Rose team appeared for the first time in a championship game and played a



steady game speaks well for the probable future of the nine.

The score was as here given:

## R. P. I.

|                       | A. B. | R. | 1st B. | S. H. | P. O. | A. | E. |
|-----------------------|-------|----|--------|-------|-------|----|----|
| Anderson, c. . . . .  | 4     | 0  | 0      | 0     | 4     | 1  | 1  |
| Hildreth, r. . . . .  | 2     | 0  | 1      | 0     | 1     | 0  | 0  |
| Troxler, 3d. . . . .  | 2     | 1  | 0      | 0     | 1     | 0  | 0  |
| Hedden, s. s. . . . . | 3     | 0  | 0      | 0     | 1     | 1  | 2  |
| Brinker, 2d. . . . .  | 3     | 0  | 0      | 0     | 2     | 0  | 0  |
| Brown, m. . . . .     | 2     | 1  | 0      | 0     | 3     | 0  | 0  |
| Austin, 1st. . . . .  | 2     | 0  | 0      | 0     | 9     | 0  | 0  |
| Martin, l. . . . .    | 3     | 0  | 0      | 0     | 1     | 0  | 0  |
| Stewart, p. . . . .   | 3     | 0  | 0      | 0     | 2     | 4  | 1  |
| Totals . . . . .      | 24    | 2  | 1      | 0     | 24    | 7  | 4  |

Bases stolen, 9; bases on balls, 6; hit by pitched ball, 1; struck out, by Stewart, 2.

## DEPAUW.

|                       | A. B. | R. | 1st B. | S. H. | P. O. | A. | E. |
|-----------------------|-------|----|--------|-------|-------|----|----|
| Basye, m. . . . .     | 4     | 1  | 1      | 0     | 0     | 0  | 0  |
| Harkell, 1st. . . . . | 4     | 0  | 1      | 0     | 5     | 0  | 1  |
| Hankins, l. . . . .   | 3     | 1  | 0      | 0     | 0     | 0  | 0  |
| Whitcomb, r. . . . .  | 4     | 0  | 1      | 0     | 1     | 0  | 0  |
| Meade, 3d. . . . .    | 4     | 0  | 1      | 0     | 1     | 0  | 0  |
| Phillipps, p. . . . . | 3     | 1  | 1      | 0     | 0     | 1  | 0  |
| Bearse, c. . . . .    | 3     | 1  | 1      | 0     | 15    | 4  | 1  |
| Kibbie, 2d. . . . .   | 3     | 1  | 0      | 0     | 2     | 0  | 3  |
| Woods, s. s. . . . .  | 3     | 0  | 1      | 0     | 0     | 1  | 0  |
| Totals . . . . .      | 31    | 5  | 7      | 0     | 24    | 6  | 5  |

2-base hit, Whitcomb; bases stolen, 1; bases on balls, 1; struck out, by Phillipps, 16; passed balls, 2; wild pitches, 2.

Time of game, 1 hour and 40 minutes.

## SCORE BY INNINGS:

|                  |   |   |   |   |   |   |   |     |
|------------------|---|---|---|---|---|---|---|-----|
| Rose . . . . .   | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0-2 |
| DePauw . . . . . | 0 | 0 | 0 | 2 | 3 | 0 | 0 | 0-5 |

Umpires, Barnes and Blake.

R. P. I. 13, Y. M. C. A. 3.

The ball season at Rose opened the 14th inst. with a well attended practice game between R. P. I. and the Y. M. C. A. of this city. Considering the circumstances which attended the selection of both teams it was a well-played game. For Rose, the previous week afforded little time for practice, and the team was not definitely chosen until the evening before the game. In the case of the Y. M. C. A. several of the team had never played together before, which partly explains the one-sided score.

If the batting in this game is any indication of what the team will do in subsequent games, it presents the most exceptional feature of good batters.

For Y. M. C. A., Ellis, Hanna and Boggs played to good advantage, and for Rose, Hedden, Brinker and Austin deserve special mention.

The following is the official score:

## R. P. I.

|                       | A. B. | R. | 1st B. | S. H. | P. O. | A. | E. |
|-----------------------|-------|----|--------|-------|-------|----|----|
| Anderson, c. . . . .  | 6     | 2  | 3      | 0     | 9     | 0  | 0  |
| Austin, 1b. . . . .   | 6     | 2  | 4      | 0     | 8     | 1  | 0  |
| Hedden, s. s. . . . . | 5     | 2  | 1      | 0     | 1     | 1  | 0  |
| Martin, l. . . . .    | 4     | 1  | 0      | 0     | 2     | 1  | 0  |
| Liggett, r. . . . .   | 5     | 1  | 1      | 0     | 0     | 0  | 0  |
| Brinker, 2b. . . . .  | 3     | 1  | 1      | 0     | 3     | 2  | 0  |
| Troxler, 3b. . . . .  | 5     | 0  | 3      | 0     | 0     | 0  | 0  |
| Brown, m. . . . .     | 5     | 2  | 2      | 0     | 3     | 0  | 1  |
| Stewart, p. . . . .   | 3     | 2  | 0      | 0     | 1     | 4  | 2  |
| Totals . . . . .      | 42    | 13 | 15     | 0     | 27    | 9  | 3  |

Earned runs, 13; 2-base hit, Hedden; bases stolen, 10; bases on balls, 3; struck out, Stewart 7; passed balls, Anderson 1.

## Y. M. C. A.

|                       | A. B. | R. | 1st B. | S. H. | P. O. | A. | E. |
|-----------------------|-------|----|--------|-------|-------|----|----|
| Hanna, c. . . . .     | 3     | 1  | 1      | 0     | 4     | 4  | 0  |
| Leech, p. . . . .     | 4     | 0  | 0      | 0     | 3     | 3  | 0  |
| Wharry, m. . . . .    | 4     | 0  | 1      | 0     | 0     | 0  | 0  |
| Ellis, 2b. . . . .    | 4     | 0  | 2      | 0     | 8     | 0  | 1  |
| Curtis, s. s. . . . . | 3     | 0  | 0      | 0     | 0     | 4  | 2  |
| Snyder, 1b. . . . .   | 3     | 1  | 0      | 0     | 10    | 1  | 3  |
| Boggs, 3b. . . . .    | 2     | 1  | 0      | 0     | 1     | 3  | 2  |
| Conners, l. . . . .   | 3     | 0  | 0      | 0     | 1     | 1  | 0  |
| Tipton, r. . . . .    | 3     | 0  | 0      | 0     | 0     | 0  | 0  |
| Totals . . . . .      | 29    | 3  | 4      | 0     | 27    | 17 | 8  |

Earned runs, 2; 2-base hits, 1; bases stolen, 6; double plays, 1; bases on called balls, 5; struck out, Leech 5; passed balls, Hanna, 2.

Umpire, Mr. McCormick.

Time of game, 1 hour and 45 minutes.

## FIELD DAY COMMITTEE.

The first meeting of the State Intercollegiate Field Day Committee was held in Indianapolis, April 14th. The seven colleges being represented as follows: Somerville of Butler University, Huffer of Wabash College, Syrratt of Indiana University, Ray Ewry of Purdue, O. C. Pratt of DePauw, W. E. Maddock of Earlham, McCulloch of Rose Polytechnic. The first matter settled was the

date for Field Day, which will be May 29th. The limiting of entries permitting two entries to each event from each college was decided upon, and the forfeit of one dollar for each contestant remains as on former occasions.

The events in order are arranged in the following manner:

1. 100 Yards Dash—first and second heats.
2. Putting 16 lb. Shot.
3. Running Broad Jump.
4.  $\frac{1}{4}$  Mile Safety.
5. 100 Yards Dash—final heat.
6. 1 Mile Walk.
7. Pole Vault.
8. Throwing Base Ball.
9. Standing High Jump.
10. 220 Yards Dash.
11.  $\frac{1}{2}$  Mile Safety.
12. Hop, Step and Jump.
13. 120 Yards Hurdles—first and second heats.
14. Throwing 16 lb. Hammer.
15. High Kick.
16.  $\frac{1}{4}$  Mile Run.
17. 1 Mile Safety.
18. Running High Jump.
19. 120 Yards Hurdles—final heat.
20. Standing Broad Jump.
21. 1 Mile Run.
22. 2 Mile Safety.

The rules of the A. A. A. U. and L. A. W. to govern all events. All entries are to be handed to the Program Committee by May 21st.

C. O. DuPlesses and E. W. Smith, of Chicago, who have acted as referee and starter at the principle meets of the west, will be present and officiate.

On the subject of the division of net proceeds of the meeting it was decided to divide 70 per cent. of net receipts equally among all colleges starting eight contestants, the remaining 30 per cent. to be divided among the colleges in proportion to the number of points won. The time keepers, field and finish judges, will be selected from the faculties of the colleges represented. Rose Polytechnic, in addition, has the selection of Clerk of Course.

Gold and silver medals will be awarded to the winner and second of each event, tennis excepted, in which latter case the winning players only receive medals.

Negotiation for grounds, etc., is in charge of Mr. Somerville. Butler University will attend to the preparation of apparatus and such material as is needed for the various events.

The following committees were selected:

Guarantee Committee—A. H. Somerville and Butler University.

Programs and Advance Circulars—McCulloch, R. P. I.; Ewry, Purdue; Syrratt, I. U.

Evening Entertainment and Presentation of Medals—O. C. Pratt, DePauw; W. E. Maddock, Earlham.

Advertising—McCulloch, R. P. I.; Huffer, Wabash; Somerville, Butler.

Medals—McCulloch, R. P. I.; Ewry, Purdue; Syrratt, I. U.

Concerning the all around athlete suggested by Prof. Waldo, of De Pauw, no definite arrangements were agreed upon, but in all probability the matter will be settled at the next meeting and a prize offered. Prof. Waldo's plan is to divide the events into four classes, two firsts of different classes to count more than two firsts in the same class. The next meeting of the committee will be held May 28th.

#### ATHLETIC PRACTICE.

The efforts at present being made by those interested in athletics to get into condition to do their utmost is a favorable indication of what the students will do before the close of the year. This is no idle speculation, for although we have only commenced and there is much work of preparation to be done, the hearty co-operation of the students thus far is most encouraging.

Neither is the work concentrated on any one branch of athletics to the neglect of the rest. While base ball and tennis attract the attention of the majority, field events have a large number of persistent patrons. It is to be hoped that after the ball team has been chosen the other players will assist in getting the team into shape and keeping them in practice. The need of this was learned last year and should not be ignored.

About thirty students met on the ball ground Saturday, 7th inst., and after two hours of hard

work disposed of enough superfluous sand to leave the diamond in good condition. The diamond was then laid off and two nines practiced for nearly two hours. The playing on both sides was loose and at no time exciting, but served the purpose of getting the ball players together.

Saturday, May 5th, has been selected by the athletic directors for Spring Field Day. This will be the opportunity for the untried men as well as for those who have been practicing for new events. Preparation should be made for this day and all should be present at the Fair Grounds and take part.

All tennis players should be getting in form for the tournament which will be played shortly before Field Day. The selection for representative players will be made from the best players who take part in these games.

#### PROPOSED FOOT BALL REGULATIONS.

The foot ball experts held a meeting in New York recently. The following points were practically decided on, subject to the approval of the foot ball authorities at New Haven, Cambridge, Princeton, Philadelphia and elsewhere:

1. The piling upon a man when he is down will be heavily penalized, probably fifteen yards will be exacted from the perpetrator.

2. A man making and about to make a fair catch will be amply protected, the penalty again being fifteen yards loss for interference.

3. Legislation looking to the adoption of a more open game will be enacted. Actual kicks will have to be made at the kick-off, upon a fair catch, and at the twenty-five yard line.

4. A man intending to make a fair catch must indicate his purpose by raising his arm as a signal.

5. An additional official to be known as linesman is to be appointed. He will remain outside the side lines, keep the actual time, note the downs, etc.

6. In all probability the playing time will be reduced from its present duration of two and a half hours.

7. A premium will be placed upon drop-kicking by increasing its relative value, otherwise the present ratio of values will be maintained.—*U. of P. Courier.*

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#### FIELD NOTES.

Several additions to apparatus in the shape of base ball and tennis supplies have been made recently; the former includes eleven new bats, one dozen base balls and four gloves; the latter, one net, one dozen restrung rackets and four dozen tennis balls.

Candidates for the ball team met Wednesday, the 11th inst., and elected Hedden captain.

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#### OUT-FIELD NOTES.

In the new athletic field for the University of Pennsylvania there will be a base ball cage containing a full sized diamond surrounded by a twelve-lap running track.

Balliet, center-rush of the victorious Princeton foot ball team, will coach Purdue next fall.

April 7th, University of Illinois, 14; Wabash, 2.

April 14th, DePauw, 8; Anderson, 7.

The Butler-Purdue ball game last Saturday, the 21st, was given to Butler, and Purdue has protested the umpire's decision. The controversy which ended the game occurred during the eighth inning, the score at that time being 9 to 4 in favor of Purdue.

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## ROSE LEAVES.

### NEW BOOKS BY COLONEL THOMPSON.

Colonel Richard W. Thompson, President of the Board of Managers, has recently completed the manuscript for two books which are to appear during the summer. The more elaborate work is called "Personal Recollections of Sixteen Presidents." Washington and the elder Adams are the only presidents whom Colonel Thompson never saw, while his long public career placed him upon terms of intimacy with most of the succeeding chief executives, and probably no other man living is qualified to deal with the subject as he has been able to. The Colonel has purposely stopped with Lincoln so as not to deal with any administrations having reference to the politics of to-day.

The second work is a novel called "The Singletons" and is a story of Virginia life as the author knew it in the early part of the century. Oddly enough it contains little or no love making and as Colonel Thompson claims never to have been a novel reader and to know nothing of the conventionalities it will probably be quite out of the usual line.

Both works will be interestedly awaited by the many Rose men who know Colonel Thompson as a friend and admire him as a man.

### THE AIR BRUSH.

The air brush is the first improvement made upon the camel's hair brush or the crayon and stump for the purpose of placing color upon any surface.

It is a tool with as little mechanism as will allow the operator to handle compressed air for the distribution of liquid pigments at his pleasure. It is manufactured by the Air Brush Mfg. Co. at Rockford, Ill. As the space at our command will not allow of an extended account of the tool a few facts concerning the work done with it will be given. A catalogue giving a minute description may be had by applying to the manufacturers.

The air brush may be used for the applying of any liquid pigment. As the color is atomized from a movable needle (which is entirely at the will of the operator) it almost immediately dries upon the paper or other surface upon which it may be deposited and thus does away with the possibility of colors clouding. From this fact drawings made upon silk are especially attractive and if done with indelible colors may be washed when soiled.

Mr. E. H. Gibson who attended the Polytechnic two years ago on returning to Rockford at the close of the spring term took up the air brush and with the knowledge of mechanical drawing and perspective which he acquired at Terre Haute, accepted a position as draughtsman and designer with the firm of J. W. Gooch & Co. at Waco, Texas, at a salary of—well it won't do for us to say. It was such a figure that you might not believe it and if we did tell Gibson wouldn't like it.

In all draughting and designing where much detail is desirable, the air brush is exceedingly useful; its rapidity permitting a degree of elaboration otherwise impossible in commercial work.

To mention a single instance: The Ordnance Survey Office at Southampton, England, is now employing a number of these instruments, and it is creditably reported that eighty per cent. of time is saved. This office is the headquarters of a staff of royal engineers and their large corps of assistants, who are engaged in an official survey of Great Britain and Ireland and the maps are here drawn, colored and reproduced.

In monumental drawing the air brush enables the designer to execute upon vellum, silk or paper a perfect *fac simile* of any stone, with a rapidity and perfection almost incredible to those unacquainted with its work. While its use for monumental work is constantly increasing, yet the fact is concealed in most cases, as the following actual occurrence indicates. The Air Brush Company addressed a large marble firm whom it



knew to be successfully using the air brush, asking for some information, and received a reply admitting the value of the instrument, but declining the use of their name, and concluding as follows: "Our designs are as mysterious to our competitors as they are marvelous, and we wish them to remain so."

THIS month's reception to the students, given by President and Mrs. Eddy, was pronounced to be the most successful of these enjoyable events in Poly life. The art gallery was appreciated from an artistic standpoint as well as from the pleasure afforded in viewing the works of art with a fair critic. The artistic nature of the Poly is continually in a state of suppressed rebellion. In his day-dreams he finds himself painting such color creations as rival Spanish art, while in the stern reality of life no opportunity is offered for him to use a warmer color than "blue sepia." This pent-up longing for the colors of life and warmth, red in particular, usually becomes uncontrollable about Halloween and thus often is the faculty made aware of the artistic inclinations of the students. From this it may be imagined how the average Poly rejoiced in the contemplation of works so true to nature as those in the art exhibit at the recent reception.

#### *A QUEER PROCLAMATION.*

Some time ago THE TECHNIC received the following account of a queer proclamation made in all earnestness by the high mogul of one of the Caribbee Islands, and as we have never seen it published in the papers we give it in full:

In the department of Castanas there had been no rain for nearly a year, and the people were brought to such a pass that they were actually dying of thirst, to say nothing of the total destruction of all crops and other agricultural industries.

*El Pueblo Catolico*, of New San Salvador, prints a number of resolutions promulgated by the principal alcalde of the town and department of Castanas. They are as follows:

"Considering that the Supreme Creator has not

behaved well in this province, as in the whole of last year only one shower of rain fell; that in this summer, notwithstanding all the processions, prayers, and praises, it has not rained at all, and consequently the crops of Castanas, on which depend the prosperity of the whole department, are entirely ruined, it is decreed:

"Article 1. If within the peremptory period of eight days from the date of this decree rain does not fall abundantly, no one will go to mass or say prayers.

"Article 2. If the drouth continues eight days more, the churches and chapels shall be burned, and missals, rosaries, and other objects of devotion will be destroyed.

"Article 3. If, finally, in a third period of the eight days it shall not rain, all the priests, friars, nuns, and saints, male and female, will be beheaded. And for the present permission is given for the commission of all sorts of sin, in order that the Supreme Creator may understand with whom he has to deal."

The most remarkable feature of this affair is the fact that four days after these resolutions were passed the heaviest rainfall known for years was precipitated on the burning community.

#### *AN ELECTRIC CITY.*

According to the account given by a correspondent, Great Falls, Montana, appears fairly entitled to the distinction of being called the Electric City. At Black Eagle falls, three miles above the town, an immense dam has been thrown across the Missouri, and hydraulic works and power houses erected. Not only are the street cars propelled and lighted by electricity from the power-houses, but they are heated as well by electric radiators placed in each car. Elevators, printing-presses, cranes, and all kinds of machinery are operated by the ubiquitous force. There are automatic excavators, electric pumps, and electric rock-crushers. A not uncommon sight on the streets is a mortar-mixer attached to an electric wire leading down from a pole. The restaurants cook by electricity, the butcher em-

plays it to chop his sausages and hamburger, and the grocer to grind his coffee, and so likewise does the tailor to heat his goose. The subtle fluid is a welcome blessing in every home; the housewives run their sewing machines and heat their flatirons by electricity; they bake their cakes in

wooden electric cake-ovens that can be set away on a shelf like pasteboard boxes. They have electric boilers and broilers and teakettles. What a singular anomaly when one pauses to think of it: that of broiling steaks and heating flatirons through the instrumentality of a waterfall!—*Ex.*

## DIFFERENTIALS.

Dr. Ballard has the classes in mineralogy this year.

Get your Rose and White silk cane flags ready for the 29th proximo.

The festive whirr of the lawn mower is again heard on the campus.

The Sophomores have begun calculus and are using a text book by G. A. Osborne.

Mr. R. R. Ragan, editor-in-chief of *The Wabash*, visited the Institute on Monday last.

The Seniors are wondering what has become of the geology lectures scheduled for this year.

The shop instructors enjoyed a lay off Saturday afternoon while the ball game was in progress.

Haney, '97, was ill for some time during the past month, but is now able to resume his studies.

The Senior civils have had a group picture taken without the regulation outfit of transit and levels.

Darst, '95, enjoyed himself during the spring vacation fixing up the street car motor in the shops.

Many Seniors lamented the fact that General Fry's army did not reach Terre Haute until about two months later.

Speak gently to the Senior chemist when inquiring about the progress of thesis drawing. It is a delicate subject.

The stave pile bleachers were filled with a representative array of spectators on the occasion of the DePauw-R. P. I. game. Visiting teams can count on enthusiastic support from this quarter.

Prof. to Sophomore—"What is the color of gold?"  
Sophomore—"Gold has a green color."

A valuable paper on Camphoric Acid, by Professor Noyes, appeared in the last number of the *American Chemical Journal*.

Wright & Holloway have the contract for Senior pictures and the members of that class are practicing the "pleasant" look.

Carlton B. McCulloch, ex-'94, and now of the Chicago Homeopathic college, has been visiting his brother, David McCulloch, '94.

We should like to go on record as earnestly petitioning that clean towels be put in the wash room oftener than once or twice a week.

At last the grand stand is complete with a wire netting so that the audience will no longer find it necessary to act as back stop for foul tips.

On Monday of this week the Seniors were the fortunate recipients of invitations from Mrs. Eddy for dinner on Friday evening, April 26th.

A sectional model of a steam engine cylinder, piston and connection, has been constructed in the shops for use in the steam engineering work.

Field Day and Decoration Day will constitute our next holiday breathing spell. If things go our way the latter day will be decoration day indeed.

Prof. Mees needed no one to explain the cause for the absences of so many Juniors from the physics quiz the morning after the Sigma Phi reception.

Dr. Ballard is a new member of the Faculty Cycling Club, and it is understood that Prof. Wickersham is contemplating the advisability of joining the society.

A bewildered Freshman asked Prof. McCormick, the other day, in reference to some trigonometry examples—"How can you tell whether those things are soluble or not?"

Darst took one of his class-mates into his confidence the other day, and said that the recent warm weather made him so lazy that he could not study and that he was "going to flunk."

Season tickets for the base ball games are now for sale and can be obtained from McCulloch, Wiggins, Burk and Fry. These tickets include admission to the Grand Stand for five games price \$1.00.

Robinson and Prof. Mees have no difficulty in agreeing with each other on the expansive properties of liquids, but when Prof. Mees says "Take, for example, two tanks full of water," Robinson looks doubtful.

— Bevins has been employed by the athletic directors to look after apparatus, etc. for the remainder of the year. The blank means that we do not know the name; do not misunderstand our feelings toward the young man.

Ninety-six has lost a popular member and its class orator in Mr. A. Kennedy Ashworth, who has been continuing his studies in Pittsburgh since the Easter holidays. His former classmates wish him every success in his new work.

McCulloch, '94, represented the Poly Athletic Association at the meeting of delegates from the various Indiana college associations, held at Indianapolis, April 14th. At this meeting the date for state Field Day was fixed as May 29th.

Quite a Rose delegation attended the reception of the Coates College "Mansioners" on Friday evening, April 19th. An exceedingly delightful evening was passed, so pleasant that the last car came and went and still many tarried. With such pleasant memories the long walk could but be enjoyable, however.

Messrs. Mory and Blinks spent several days in Decatur, Ill., at the beginning of this term, inspecting a new gas plant which is being erected at that point. Their thesis will be a test of oil gas manufacture in all its phases and will be very complete.

The new features of the German course are quite interesting. Not only have German walks been introduced but also German songs. The Freshman class were much moved by the effective rendering of Tannen Baum by section B, Sophomore, the other day.

The *DePauw Weekly* will publish in book form the orations, together with a cut of each of the orators of the Interstate Oratorical Association. A copy will be mailed to any address on receipt of 25 cents. Address J. T. Cutler, Managing Editor *DePauw Weekly*, Greencastle, Ind.

With gun cotton in process of manufacture, highly inflammable hydro-carbons in course of distillation, the most corrosive acids in frail glass vessels, the thesis work of the Senior chemists has been progressing with an element of sudden possibilities rather alarming to the uninitiated.

It is with no surprise that we learn of O. E. McMeans being the most successful competitor for the honor of designing the cover for the Sophomore Sketch Book. By his efficient work throughout his course in drawing he has deservedly won the name of being the best draughtsman in the Poly.

The "Midway" has been sorely disappointed. When the Congregational church brought the World's Fair here the Midway naturally expected they would be invited to join forces. Imagine their surprise when they were not only left out of the combine but did not even receive compliments. In consequence of this bitter disappointment the Midway has become despondent. The thrilling melodies which heralded the wedding procession in the streets of Cairo, as played by Har Ris, have changed to the most mournful dirges, which even the tribe of Normalites in the vicinity heartily resents. B. Urk has left the



Turkish theater, doffed his turban and though wishing to assume the American head dress had, up to the 21st inst., not been able to find a hat which would cover much more than one ear. Their case is almost as distressing as that of Fry's army.

Prof. Wickersham has been kind enough to form a vocal quintette from among the members of the Sophomore class. The musicians of the school have long felt the need of a glee club, and indeed the organization of this quintette renews the hope that the old time Poly spirit of enterprise will some day be revived. The members are Decker, Liggett, McMeans, Patterson and Harris.

Willius, '97, lately had a spirited encounter with the buzz saw. The latter was in its most eloquent mood and its argument was  $n t + e$  (where  $n$  is the number of revolutions per second and  $t$  is the time of encounter) which was delivered in such a cutting manner that our Poly soon retired from the fray. Mr. Willius has the sympathy of the Polys, and especially of those who have suffered similar defeats.

The Sophomore civils are, at present, hard at work, making a topographical survey at Lost Creek and are incidentally putting in a switch, connecting the Vandalia and Big Four railroads. Arrangements were made this term enabling this class to put in Monday of each week in field practice. In this way less time is consumed in getting to and from work, as the party bivouacs on the field of action.

Several Polys were noticed sneaking westward, through the alleys, Sunday, with bundles under their arms. Whether they originally intended to join the commonwealers and were refused admission, or whether they performed a pure act of charity is unknown, but the fact that they came back minus their bundles indicates one of the two suppositions; the latter, we sincerely hope, but we greatly fear that 'twas the former.

The Phi Sigma Phi dance at Bindley Hall, on Friday evening, April 13th, was one of the pleasantest events of the season. The hall was artistically decorated; the Ringgold orchestra, stationed

behind a screen of flowers and foliage, discoursed the sweet strains that set every foot in motion, and all was merry as a college dance can be. Over fifty couples were upon the floor and enjoyed the delightful hospitality of the evening.

As the Faculty vs. Senior ball game has failed to materialize for the last few years, the TECHNIC would suggest that a free-for-all road race be substituted. The Faculty wheelmen would doubtless easily win the victory, as some of the members are in most excellent training. To say that Mr. McCormick goes like the wind would not be a just comparison, for in trying to keep pace with a '96 leveling party it was found that even the wind in the tires of his wheel was being left behind.

Startling is the news which reaches us from St. Peters, Minn., the home of Barry O'Brien, ex-'94, whose praises have been sounded, both in prose and poetry, in the columns of THE TECHNIC. It is an authentic rumor to the effect that Barry is about to assume the matrimonial yoke. Though the cards are not yet out, still we thought best to slightly anticipate, that Barry's admirers among the fair ones of Terre Haute might not be totally unprepared for the shock. The Poly wishes all happiness to the bride elect and extends heartiest congratulations to Barry.

The Freshman civils, who had thought themselves well through with pattern making and the work shop, and who were industriously pacing back and forth behind the high board fence on the east side of the campus, wondering thoughtfully why they had never happened to notice the tremendous length of the campus before, were rather disagreeably surprised last week at being suddenly sent to the workshop to construct some compasses for their own use. To have to make them is bad enough but to be obliged to use them is cruel.

During the sojourn of Gen. Fry's army on the other side of the river, Messrs. Andrews and Hildreth spent their time at the camp, carrying their lunches every day that they might receive the utmost benefit from the society of their friends. Andrews is even now having his mail forwarded in "care of Gen. Fry's Industrial Army," and will



soon join his command, remaining in Terre Haute only long enough to get complete data concerning the rolling stock of the Vandalia, a duty to which he has been detailed. In an interview with a *TECHNIC* reporter he remarked that he would at all times be happy to give any information concerning the army. Those who intend to enlist would do well to call upon Mr. Andrews.

THE *TECHNIC* regrets that it is necessary to announce the second withdrawal of A. J. Parra from the Institute. Entering with the class of '94 he made excellent progress throughout his Freshman year in spite of the difficulties of mastering the language as well as his studies. As he wished to make mining engineering a specialty he left here to enter the Colorado School of Mines, where he remained until late in 1893. Returning to the Poly last term he entered the chemical department of his old class and was working on his thesis when summoned to Chicago to represent a South

American mining syndicate in which his father is interested. It is needless to say that he has our best wishes, nor is it necessary to wish him success in this enterprise, for he is a "hustler" and success is sure to be his. There is a possibility of his continuing his course next year, and should he return he is sure of a hearty welcome by the Polys.

Some of the young ladies who witnessed the DePauw-R. P. I. game wondered if the members of the DePauw nine thought they would dissolve in water, as they retired so rapidly at the first drops of rain. There may be some doubt as to their being so nearly related to saccharine as this, but it is whispered that the true difficulty was that the coloring matter in their suits is very easily soluble in water, producing a brilliant red solution, and that the theological students on the nine had serious objections to painting the town red in broad daylight.

## THE COLLEGE WORLD.

For the first time, West Point will hold athletic games this spring.

The balance in the treasury of the Yale Foot Ball Association is about \$28,000.

Harvard has added the courses of Mining and Architecture to its curriculum.

Two hundred and nineteen students will graduate with the class of '94 at Cornell.

The Indiana State University presidency has been offered to ex-President Harrison.

The polo teams of Stanford and California Universities play entirely on artificial ice.

The Glee, Mandolin and Banjo Clubs of Amherst will sail July 4 to make a tour of the British Isles.

In the University of Alabama there are only five students who do not subscribe for the college paper.

Plans for a new gymnasium at Princeton are now being prepared. It is to be given by the alumni.

It has been decided that there shall be no more foot ball matches between West Point and Annapolis.

James R. Garfield, son of the ex-President, is a candidate for the position of Alumni Trustee of Williams.

The Junior Mechanicals and Civils of Lehigh spent a week recently inspecting places of interest in New York.

Twelve men at University of Pennsylvania are training daily for positions on the foot ball team for next season.

Cricket is being revived in many of the eastern colleges. Matches have been arranged between Harvard and University of Pennsylvania.