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The Daily Cardinal.

UNIVERSITY OF WISCONSIN.

VOL. IV—No 83.]

MADISON, WIS., SATURDAY, JANUARY 12, 1895.

[PRICE THREE CENTS.

THE TRANSMISSION OF POWER

MR. ABBOTT LECTURES TO THE
ENGINEERS.

ON THE CONSTRUCTIVE FEAT-
URES OF TRANSMISSION.

Large Audience Present—Aerial and
Underground Lines.

The Physics lecture room was filled yesterday afternoon with engineering Constructive Features of Transmission students who were gathered to hear Mr. A. V. Abbott, chief engineer of the Chicago Telephone Co., lecture on Constructive Features of Transmission Lines. All who heard Mr. Abbott lecture last year on the telephone switch-board were well pleased with the opportunity to hear him again. In introducing the speaker, Prof. Jackson stated that an effort had been made to secure the services of Mr. Angus S. Hibbard for a lecture this year also, but unfortunately, owing to the press of business the effort had failed. Mr. Hibbard is general manager of the Chicago Telephone Co., and is one of the most successful organizers and managers in the country. The Chicago telephone exchanges, today are probably the most efficiently managed of any in the country, and a lecture from Mr. Hibbard would be of undoubted interest and benefit. He very kindly sent up for distribution a number of copies of an article written by him for Electrical Engineering for December, 1894. It is an article especially adapted for the enlightenment and instruction of telephone subscribers who have a great deal of business to do over the line, but fail to get the maximum service out of it. This is because of their own misuse of the line by "holding the line" till someone can be called, by using the line uninterruptedly for several calls and by other similar methods thus preventing others from calling them up. It is sometimes necessary to provide separate lines in a subscriber's office for outgoing and incoming business. Mr. Hibbard is of the opinion that the dissemination of such literature among telephone subscribers is of great benefit in raising the efficiency of the service, which result is to be obtained only by the co-operation of all concerned.

Mr. Abbott said that the utilization of energy is an indication of civilization. The application of the forces of nature increases with the enlightenment of a people. Formerly it was necessary to use the energy of the waterfall or of the coal mine or other sources of power near that source, but now owing to the facility with which electric power may be distributed it is often much easier to bring the power to the work to be done than to bring the work to the source of power. This condition of affairs in the distribution of power and the increasing demands for means of easy communication have given rise to the great engineering problem of the construc-

tion and maintenance of transmission lines for telephone, telegraph, lighting and power service.

The points to be considered in this problem are the establishment of the path for the electricity, the mechanical appliances for the preservation of the path and the provision of electrical properties which shall preserve the energy safely and economically. There are now two well established classes of lines: aerial and underground. For aerial lines in cities straight, sound poles of from forty to sixty feet in height and of about eight inches in diameter at the small end are required. The cross arms, each carrying ten insulators, are fastened about twenty inches apart by means of a gain cut in the pole into which the cross-arm is bolted with a single bolt passing through the pole. This bolt holds also the iron braces for the cross-arm next above. The cross arms are usually of good, sound yellow pine. In Europe the preservation of the pole for a period of twenty-five or thirty years is effected by means of creosoting. This consists in removing the sap from the wood by treating with superheated steam in a large vat from which the air is afterwards removed thus drawing all the moisture out of the wood. Then the vat is filled with the creosote compound and boiled under pressure till the wood is thoroughly permeated. The wires are strung along the poles under a tension of 1,500 pounds while stranded cables containing a number of wires incased in a lead sheath have a tension of about 3,000 pounds and must be supported at intervals from suspension wires strung along above them. At point, where the lines turn a corner or where a number of the lines or cables are brought to the ground to be run in underground conduits, especial care must be given to bracing or guying the pole, and much trouble is often had with this part of the work. Owing to lack of space the guy is sometimes brought nearly vertically to the ground. The vertical component of the tension in the guy together with the weight of the wires is liable then, to cause buckling of the pole. The guy should be attached to the pole at the point of application of the resultant pull of the wires, but this point is hard to determine and in consequence the pole is often bent sharply near the fastening for the guy. This may be most effectually overcome by using a pole built up of angle iron with lattice bracing. This makes a very shapely as well as strong pole but costs several hundreds of dollars. A very good as well as comparatively cheap pole is made by clamping along one side of the upper part of the pole, two angle irons braced with lattice-work. The angle irons are stiff enough to prevent bending when the guy is attached, and the wooden part of the pole acts simply as a column. Of late years, much objection has been raised to poles in cities but the speaker was of the opinion that were the different parties using poles willing to harmonize their interests, thus using fewer poles, and were proper attention given to the slight appearance of the poles, ninety per cent of the objections would disappear.

Projections of insulators and other attachments for overhead construction were shown and the prominent feat-

Continued on Third Page.

AGAINST CONTRACT LABOR

YESTERDAY'S DEBATE WON BY
THE AFFIRMATIVE.

AFFIRMATIVE SUBSTITUTES
PUBLIC ACCOUNT SYSTEM.

Toast by Montgomery—Other Features
of the Program.

the profit of the prison. The warden, instead of acting in that capacity, as under the contract system, is turned into a contractor as well, and will not have time enough to devote to the convicts.

S. N. Risjord followed for the affirmative. He took up the reformatory phase of the question. He showed that under the contract system reformation is made a secondary consideration and the first consideration is to make the prisons as nearly self-supporting as possible, and that is the only advantage of the contract system. He maintained that the contractors, to a great extent, control the prisons, and that their influence in prisons is detrimental to the proper reformation of the criminals; that they are speculators and their success depends upon getting the prison management under their control.

E. A. Evans, the second speaker on the negative, made a clever and able debate. He said that the affirmative held the moral side of the question equal in importance to the financial side; that the objection of unfair competition would not hold. He gave several instances when the warden and the state had suffered considerable loss in the manufacture of goods under the public account system.

August J. Giss closed for the affirmative in a forceful and convincing argument. He affirmed that contractors employing prison labor could not be undersold. The failure of the Public Account system, which had been quoted by the negative, in Illinois, Massachusetts, and New York, was under machine labor and therefore irrelevant. In Wisconsin, where the contract system has been most successful, it has resulted in many evils. Classification under the Public Account system with hand labor offers great opportunities for information. Direct financial considerations have thus far influenced legislation to a great extent in favor of Contract system.

Clarence Luby closed the negatives' debate. He reviewed the points brought forward by his colleagues in a skillful manner and placed his side of the question in a clear light. He said that under the Contract System the reform of criminals is a success, and that the contractor has nothing to do with the discipline of the prisoners. Under that system the convict to him instead of a hand trade. He is given a trade which will be useful is taught the habit of industry and self-support. Classification and all the modern reformatory methods exist under this plan and the discipline is as good as under any other.

In his three minute rebuttal Mr. Giss denied the reliability of the table of reconvictions because the criminal classes are constantly on the move and such statistics would be misleading.

Before the decision of the question, Mr. C. C. Montgomery gave a happy toast on "The Girls of Our University." His search for information in regard to those delightful creatures took him to many well-known persons and the answers of each were recorded.

The judges, Messrs. C. N. Gregory, A. A. Knowlton, and W. M. Smith, decided 2 to 1 in favor of the affirmative.

THE DAILY CARDINAL.

The Daily Cardinal.

PUBLISHED DAILY (SUNDAYS EXCEPTED)
DURING THE COLLEGE YEAR.

BY THE STUDENTS OF THE
UNIVERSITY OF WISCONSIN

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Madison, Wis.

Room 7, Democrat Building.

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NOTICE.

No Cardinals will be delivered to
any address after Saturday unless
subscriptions are paid up. Leave
name and address in cash boxes in
Library and Science hall.

The growth of the College of Agriculture is the most remarkable of any of the departments of the university. This growth has taken place entirely within the past few years and is rapidly exceeding the accommodations for the students in that college. In fact, the present quarters, especially in the Dairy school, are entirely inadequate and many students in that school are turned away every year. The present Dairy building has only been constructed for a few years and at the time of its erection was considered large enough for all students who might enter the department.

ATHLETIC NOTES.

Crew.

The boat crew men have got down to
really work now and some of the men
are already in good condition from
their football training. About thirty
men are trying for the freshman crew
and most of it is good material. Their
work will be now for general development. The varsity men are not all
in training yet, but will take up the
work soon. A coach will be secured
by February 1st and work will then
commence on the machine. Applicants
for both crews are requested to meet
in the base ball cage at 4:15 every
afternoon.

Nine.

The baseball men meet for practice
yesterday for the first time. After

half of an hour's work batting and
throwing the ball Prof. Elsom took
charge and gave them a light dumb
bell exercise. Two hours for practice
have been appointed, one at 11 in the
morning and the other at 3. On Saturday
both divisions will meet at 2
o'clock.

Track Team.

There was a meeting of the members
of the track team yesterday at the
gymnasium. Owing to the severe
weather only about twenty members
attended. Capt. Copeland took their
names and appointed the hour for
practice at 4 p. m. on every day,
starting this afternoon. The men will
be divided into squads under the
supervision of Mr. Everett. All those
who did not report yesterday may give
their name to Mr. Copeland and enter
the squads on Monday.

THE JUNIOR PROMENADE.

'96 Takes Action on the Matter—Officers Elected.

The junior class met today at 12
o'clock, in room 4, University hall. Officers
were elected as follows:

President, W. G. Bleyer.
First Vice-President, C. B. Hayden.
Second Vice-President, Miss Georgie
Hayden.
Secretary, L. L. Alsted.
Treasurer, H. H. Ross.
The matter of the Junior Promenade
which takes place this year on February 22d, then came up. A motion
for the appointment of three committees
for arrangement, reception and
floor committees, each to consist of
five members, caused considerable
discussion. An amendment was made
providing that the committees should
be elected instead of appointed by the
president, but this was finally withdrawn.
The motion as originally made
was finally passed.

The treasurer reported that the
collectors in all the courses had not yet
completed their work, and consequently
he was unable to make a definite
report. He stated however that
there was a surplus in the treasury at
present. A motion was passed providing
for the publication of the report,
when completed, in the Cardinal.

The question of a class picture came
up and the meeting decided that a
group of the whole class be taken.
This must necessarily be on the capitol
steps as that is the only place
where the whole class could be taken
at one time.

CHORAL UNION.

Rehearsal Monday Night—All Members
Must Be Present.

The Choral union will hold its
rehearsal next Monday evening as usual
in Library hall, promptly at 7:30 p. m.
At the last meeting of the Executive
Board, Prof. Parker reported in regard
to his success in securing soloists.
While the names of those already
secured cannot be given out at present,
the public can be assured that the
solo parts will be in every way as fine
as last year. The chorus, which at
present numbers 175 members, is considerately
larger than the one which
rendered the "Messiah" last spring.
The attendance at the rehearsals has
also been better.

Now that the concert is so near at
hand regular attendance at the
rehearsals is especially necessary. The
Executive Board has decided that
none but the most urgent reasons for
absence will be accepted. Absence
will forfeit membership except in special
cases. In adopting this rule the
board is only following the custom of
previous societies. The board is having
membership tickets printed which
will be used for a record of the attendance
and for the member's seats at
the concerts.

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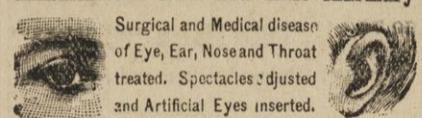
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THE TRANSMISSION OF POWER.

Continued from First Page. ure of the most successful ones were discussed, also the manner of attaching the lines. The best material for insulators is porcelain but glass is nearly as good and considerably cheaper. Underground construction has been largely a matter of experiment. Wooden conduits in which two or three cables have been placed in each passage have been tried, but after the cables have been down for some time the lead sheaths become fastened together and it is impossible to remove one of the cables. Cement conduits made in large sections have been tried but they do not preserve their alignment. A comparatively new conduit of concrete appears to answer the purpose very well but its durability remains to be determined. A very successful conduit made of hollow terra-cotta brick surrounded by a wall of cement was illustrated. The alignment in construction is secured by a wooden plug which is drawn along as the bricks are put in place. The alignment is preserved by breaking joints as a number of passages are usually laid at one time. Manholes are constructed every three feet as it is very difficult to draw in greater lengths than this. But no system used in this country is as flexible as the Edison, in which iron pipes are used. The wires, wrapped with jute, are placed in the pipes and then the pipes are filled with melted bitumen run in under pressure. As the pipes are in twenty foot lengths, service wires may be attached with ease. Different kinds of cables were shown upon the screen and their applications discussed. At present probably the most interesting conduit is the one under construction at Niagara Falls which will contain cables carrying a capacity of fifty thousand horse-power. The lecture was illustrated by an excellent collection of slides and was appreciated by all who heard it.

CHURCH NOTICES.

Unitarian: Rev. W. D. Simonds pastor. Morning service at 10:30. Sermon theme, "The Breadth and Beauty of True Liberalism." Evening service at 7:30. At this service Mr. Simonds will give the first of a series of ten lectures upon "New World Leaders of Public Opinion." Subject of first lecture, "Benjamin Franklin."

Baptist Church (on Carroll street, next Park Hotel). A. Judson Kempston, pastor. Services at 10:30 a. m. and 7:30 p. m. Preaching by the pastor. The subject of the morning sermon will be "The Third Missionary Journey of Paul, the Apostle." In the evening, "Will the Old Book Stand?" Sunday school at noon. Classes for all. Visitors are invited to enter Rev. W. G. Walker's class in the Life of Christ or the Students' Bible Study club conducted by J. C. Elsom, M. D. Y. P. S. C. E. at 6:45 Subject, Ps. 84. Leader, Mary R. Barker.

Congregational Church: Preaching by the pastor, Rev. E. G. Updike, topic for morning, "The Best Way to Answer Infidelity."

In the evening the first of a series of lectures on the Professions will be given. The list will include: 1. The Choice of a Profession; 2. The Business Man; 3. The Physician; 4. The Editor; 5. The Clergyman; 6. The Teacher; 7. The Lawyer; 8. Woman's Work.

Sunday School and University Bible class at 12 m. Y. P. S. C. E. at 6:30 p. m.

First Methodist Episcopal Church: Rev. E. J. Baskerville will preach in the morning at 10:30 on "Earnestly Contend for the Faith Once Delivered Unto the Saints."

The sermon in the evening at 7:30 will be on Dr. Jekyll and Mr. Hyde as

represented in the life of Peter. Reception of members after the evening sermon. The following selections of music will be rendered by a quartette: "Lord in the morning Thou shalt hear," (Beethoven) "Come Holy Spirit," (Warren). In the evening, "When thro' the torn sail," (Dudley Bach) "How beautiful upon the mountains" (Hodge).

Sabbath School 12 m. Junior league 4 p. m. Epworth league 6:30 p. m. Students' Bible class and Greek class in connection with Sabbath School conducted by Prof. Van Vleck and Prof. Smith. Prayer meeting Wednesday 7:30 p. m.

OFFICIAL NOTICES.

SATURDAY, JANUARY 12, 1895.

METHOD OF LEAST SQUARES: I will meet the class in the Method of Least Squares on Monday, January 14, at noon in room 21, Science hall. George C. Comstock.

FRESHMAN GYMNASTICS:—There will be only one division of the freshman class in physical culture hereafter. It will meet at 4 o'clock on Monday and Wednesday. Sophomores will meet as usual at 5 o'clock, Tuesday and Thursday.

H. H. Everett,
Instructor of Gymnastics.

UNIVERSITY ORCHESTRA.

The University orchestra met this morning at 11:30 in Library hall. Never before in the history of the university has an organization of this kind started in with such bright prospects. With Prof. Parker as president and Dr. Saunderson as leader, the U. W. orchestra promises to be a great success.

The other officers that were elected are:

Vice President—Ralph Daniels.
Librarian—B. J. Oehsner.
Secretary—B. G. Heyn.

The orchestra voted to extend its heartiest thanks to Mr. Wm. R. Schimmel of Milwaukee, who presented the orchestra with some fine music.

LOCAL AND PERSONAL.

—Wm. D. Howie of Milwaukee has entered the class of '98.

—Wm. Rickford, '97, will not return to the university this term.

—R. L. Jones, ex-'97, has entered the University of Chicago.

—B. H. Esterly, '96, has left the University having entered an art school in New York.

—W. T. Arndt, '96, who had been detained at his home on account of sickness, returned to the university today.

—Two hundred new lockers will be placed in the gymnasium next Monday. They will all be fitted out with combination locks.

—W. W. Strickland, '87, of West Superior, is in Madison visiting old friends.

—A. M. Brayton, of La Crosse, who was compelled to leave the university last year on account of ill health, returned yesterday and will resume his studies.

—The editorial board of the Harvard Crimson has decided to place the preliminary choice of editors in the hands of a committee, one or more of whom will meet the candidates each day and will adapt each man's work to his particular capacities. It has also been decided in future to hold two elections to the board a year.

—The junior class at Grinnell will give "The Merchant of Venice," during the present term.

—A relay race will take place on Feb. 9th between representatives of Harvard and University of Pennsylvania.

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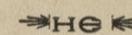
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THE DAILY CARDINAL.

UNIVERSITY BULLETIN.

ENGINEERS: The '97 Engineers' club meets as usual this evening.

MANDOLIN CLUB: The Mandolin club holds a rehearsal tomorrow (Saturday) afternoon at 4 o'clock.

Stanley Hanks.

CARDINAL STAFF: The Cardinal staff will meet at its university office Saturday at 12 m.

BANJO CLUB: The Banjo club will meet Thursday evening at 7 p. m. at W. W. Warner's music store.

JUNIOR CLASS: There will be a meeting of the class of '96 in Main hall Saturday, January 12th at 12 m. Important business to be transacted.

J. B. Amazeen, Pres.

CHRISTIAN ASSOCIATIONS: The Y. M. and Y. W. C. A. hold a gospel meeting Sunday afternoon. The topic is, "Come and See." John 1:46.

CO-OPERATIVE ASSOCIATION.

There will be a meeting of the board of directors of the University Co-operative association in Prof. Mack's office, Science hall, 3 p. m., Saturday, O. G. Libby, O. G. Libby, Vice President.

RESEARCH WORK AT OXFORD.

It is probable that Oxford will make an advance in the direction of greater freedom of study by establishing a research degree, namely, a Baccalaureate of either Science or Letters, according to the field in which the candidate has done his work. A special legacy will be appointed as supervisors of the new department. No one may enter on the course of special which entitles him to be a candidate unless he is twenty-one years old, has obtained the Oxford B. A., or otherwise qualified himself, has shown aptness for research, and has chosen a line of study which may profitably be pursued at the university. The legacy may then accept him, and after two (or in some cases, three) years of study, he may receive the degree of Bachelor of Science or Bachelor of Letters. If he obtains either of these degrees, he will be allowed to proceed to his M. A. under precisely the same conditions as if he had obtained the ordinary B. A. degree.—Harvard Crimson.

Martineau's Ethics have been received at the Co-op.

Glasses fitted by Dr. L. B. Hibborn are guaranteed to suit. Consultation free—over 400 persons fitted without one case of dissatisfaction. Optical rooms, 104 King street.

DANCING SCHOOL.

Prof. Kehl's school opens Tuesday, January 15. Class meets from 8 to 10 p. m. This is strictly a school of learning. Special rates made to students.

FOUND: A gold stick-pin with the figure 88 in monogram. Owner can have the same by calling at the Cardinal office.

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The student who assisted a lady who was injured on Fairchild street, Dec. 5, will confer a favor by sending his address care of this office.

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Look at Chas. J. Speth's offer. 25 per cent. discount is offered on all winter goods in another column.

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The celebrated Chickering, Sohmer, Gabler, Smith & Barnes and Blasius & Son pianos are handled by James B. Bradford, 3 S. Pinckney street.

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