

THE TECH

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LOWELL LECTURES ON SOLAR SYSTEM

First of the Course of Six Talks Proves Very Interesting

LARGE ATTENDANCE

Possibility of An Unseen Star Falling Into Sun Proves Interesting

"The Birth of a Solar System" the first of Prof. Percival Lowell's course of six lectures on Cosmic Physics or the Evolution of World's was given yesterday afternoon in Huntington Hall before a large audience.

Astronomy is usually regarded by the layman as a studies of bodies visible in the skies. Prof. Lowell, however, explained that a great part of the study is directed toward the dark or invisible bodies of space. All stars are suns, some of which greatly exceed our own sun in size. A telescope discloses millions more that are invisible to the naked eye. Yet these are only few in comparison to the myriads of stars which are close at hand peopling the space around us, but which except for rare circumstances remain unseen.

"All self-shining stars" Prof. Lowell said, "are continually giving out light and heat. This can not go on for ever. The stars finally grow dead unless some cosmic phenomena arises to again give them life. Such bodies exist all about us and in great multitudes."

All these dead stars are in motion and a proof of the fact is given from the peculiar action of Algol, the Demon, familiarly known as the winking star. This star has for years, at punctually recurring intervals of a few days, grown dim for a period of some twenty minutes, only to brighten again, like the winking of a huge demon eye. This loss of light is occasioned, Prof. Lowell says, by the passing around it in close orbit of a dark companion. Multitudes of these dark stars escape recognition. The only means by which they are discovered is by their possible contact with other stars causing heat and light.

The result of these collisions between the dark stars and other bodies in space is a spiral mass called Novae.

That there is a possibility of some such collision with the sun is a fact which Prof. Lowell explained at some length. Of the light stars no one of them could approach us for years. But with dark stars there is a difference. The only manner by which we could realize their approach would be by the reflection of the sun's light from their surface when they had approached close enough. The sun is travelling through space at a constant rate of eleven miles per second. The chances are that such a dark body would approach from the direction in which the sun is moving.

On the size of the stranger would depend the amount of time warning we should have of its approach. The bigger the star, the greater the reflection and consequently the more quickly would it be perceived. It is estimated that such a body could be discovered by astronomers when it is at a distance of 149 astronomical units from the earth, an astronomical unit being equivalent to the distance of the sun from the earth. Approximately nine and one half years later the stranger would be visible to the naked eye. About now it would begin to cause eccentricities in the orbits of the outer stars, and during the next three years it would steadily grow until it became recognized as a star of the first magnitude. Soon it would eclipse Venus in size, and would begin to cause a change in the length of the earth's years and seasons. In 145 days from this time the stars would begin to pass us. Our days and nights would be the only time intervals that we would recognize. The catastrophe would finally occur when this hitherto dark star would drop noiselessly into

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DR. W. A. GUERTLER SPEAKS ON ALLOYS

Instructive Talk Given To Chemical Engineers By Lecturer

RECENT ACHIEVEMENTS

Modern Science Has Provided Well Defined Rules to Aid Investigation

"Metallic Alloys" was the subject of a particularly interesting talk delivered to the members of the Chemical Engineering Society by Dr. William A. Guertler at the Union, Thursday evening. Dr. Guertler came to the Institute from the University of Goettingen, Germany, where he held the position of Docent or private lecturer. In introducing him, President C. H. Pope 1909, of the Society, said that Dr. Guertler was well up on the subject of alloys and there was not much that anyone could "show him".

Dr. Guertler said that enormous progress had been made in the last century in the matter of metallic alloys. Modern industries would be impossible without the extensive use of alloyed matters. The successes achieved in this line, however, are not to be compared with the trouble and pains taken to accomplish the results.

The great fault with modern researchers, Dr. Guertler stated, is that they mix up a little bronze and steel and copper regardless and expect to get as a result a hard and firm metal. They are usually surprised that they do not find what they want and that they obtain a brittle, useless mass.

To give an idea of the numberless

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COURSE VI. THESES

Several of Seniors Have Completed Work

Among the theses of the Electricals this year are many subjects of timely importance and local interest, as well as several important and exhaustive tests. Most of the theses are now finished and the rest are in the last stages of completion. The complete list of the theses for Course VI is as follows:—

Adams, Burgher and Glancy—"Electric Equipment of a Shoe Factory;" Altamirano and Haynes—"Street Railway Test at East St. Louis;" Barnes and Spooner—"Power Plant Test;" Barnett and Schakne—"Self-Synchronizer;" Bettington—"Mine Hoisters;" Chase and Doane—"Tests of Insulating and other qualities of Various Insulating Materials;" Davis and Johnston—"Heat Insulators;" Dunnington and Whittaker—"The Feasibility of Electrifying the Boston and Albany Railroad between Springfield and Albany;" Everett—"The Feasibility of an Electric Light Plant for Five Towns including Georgetown, Rowley, etc.;" Finnie and Lange—"Gummon, a New Insulating Material;" Gibbs—"Theatre Lighting;" Gray and Jones—"Current Phenomena in Switching Transformers on Three-phase Circuits;" Green and Ruppert—"Power House for Boston and Albany Railroad Electrified between Springfield and Albany;" Jacoby—"Axle Drive for Train Lighting;" Jones, B.H.—"Crane and Lyon Rectifier;" Kerr and Knipp—"Electrification of Baltimore and Ohio Railroad from Baltimore to Washington;" Loud and Stewart—"Examination of Blue Hill Street Railway;" Matte and Porosky—"Test of Reading Water and Light Plant;" O'Neil and Winterstein—"Electrification of a Portion of the Pennsylvania Railroad;" Pardee—"Relative Economy of Stranded and Solid Conductors for Electric Cable;" Rosenblatt and Smith—"Test of Power Plant in Schrafft's Candy Manufacturing Plant;" Witmer—"The Feasibility of Electrifying the Boston, Revere Beach and Lynn Railroad."

TECHNOLOGY WINS FROM COLUMBIA

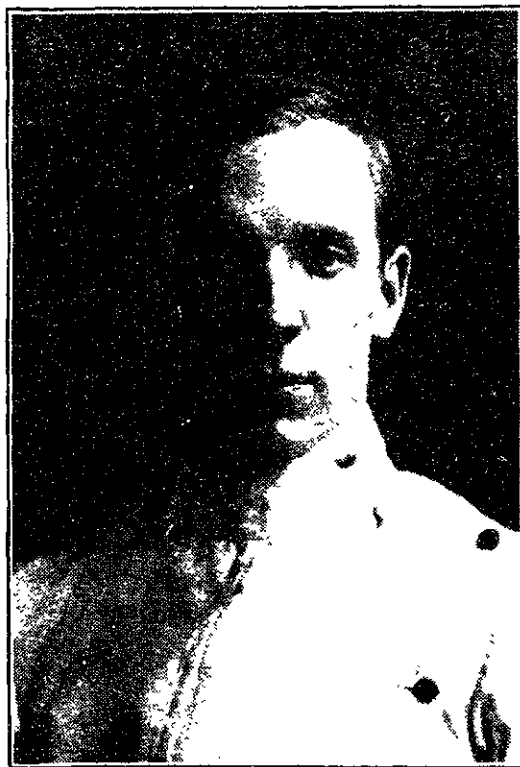
Tech Fencers Win Meet By Brilliant Work Score 7-2

KNOX INDIVIDUAL STAR

Capt. Dwyer Excels For Columbia Tech Team Fences Penn Tomorrow

In the meet with Columbia at the Gymnasium Wednesday evening the fencing team added another to its unbroken list of victories and established more firmly its reputation as one of the best aggregations with the foils ever turned out by the Institute. The meet was decisive, the home team scoring 69 touches against 19 for the visitors and winning seven out of the nine bouts.

Capt. Dwyer of Columbia won a well-earned victory from Grubnau. He also defeated Loring in the eighth bout in one of the closest matches of the evening. Ensign H. G. Knox 1910 was easily the best fencer on either of the teams. In all his previous matches this year



CAPT. V. C. GRUBNAU

he has shown himself impregnable to all attacks.

The second bout was the fastest and most interesting of the evening. This bout brought together the two best fencers, Knox and Dwyer. At the beginning of the bout Dwyer was the most aggressive but Knox perceiving that fine defensive work would not win from his opponent, became the attacking party and in the latter part of the engagement saw the Columbia man completely at his mercy.

Capt. Dwyer of Columbia did the best work for the visitors, showing fine form on the defensive. He showed up well against Knox. Loring and Grubnau also did good work.

From the showing made against Columbia and comparing the scores of Columbia with Pennsylvania and Yale, chances seem favorable for victory for the Tech team at Philadelphia tomorrow and over Harvard and Yale at the intercollegiate preliminaries a week from tomorrow in our Gym.

Bout 1.—Loring, T.; defeated Duncan, C.; 8-4. Bout 2.—Knox, T.; defeated Dwyer, C.; 8-4. Bout 3.—Grubnau, T.; defeated Pitt, C.; 6-3. Bout 4.—Knox, T.; defeated Duncan, C.; 10-1. Bout 5.—Dwyer, T.; defeated Grubnau, T.; 11-2. Bout 6.—Loring, T.; defeated Pitt, C.; 9-0. Bout 7.—Grubnau, T.; defeated Duncan, C.; 10-4. Bout 8.—Dwyer, C.; defeated Loring, T.; 8-6. Bout 9.—Knox, T.; defeated Pitt, C.; 10-5

Referee: H. S. Breckenbridge, Harvard. Judges: W. Kilpatrick, and C. C. Emerson, of the Fenway Fencing Club. Timer: F. J. Lange 1909. Time 2m. bouts.

LECTURE ON HYDRO ELECTRIC PLANTS

Mechanical Engineers Hear Interesting Talk on Hydraulics

COBURN THE SPEAKER

Discussion of Geological Survey And High Power Turbines Illustrated

At the Mechanical Engineering Society meeting yesterday evening, Mr. Howland L. Coburn, M. I. T., 1898, gave an interesting talk on the "Hydro Electric Field."

Mr. Coburn said in part: "I was invited some 10 days ago to give a talk before this society. The subject was not specified, and I have not chosen one. I usually find that when I use notes for a speech that at the end of ten minutes I have departed from them completely. I intend to give a talk illustrated with lantern slides, and to ramble over the hydraulic field and say anything that comes in my mind. Many of you may get into an establishment which has to do with hydraulic power. There is no field that fools a man more easily than the power in a river. High head and steep fall do not mean anything, and no faith can be placed in the words of the "oldest inhabitant."

Mr. Coburn then went on to enumerate examples of power plants unsuccessful because of scarcity of water due to inaccurate data. For the last fifteen years the U. S. Geological Survey has daily measured the stream flow in important streams, especially those on which stations have been established. The tables are given in depth in feet by gauge, and it is necessary to use rating tables to transform this into feet per second. It is imperative to use rating tables. Men should not be too conservative or too adventurous. Streams vary from one hundred to two hundred times the amount of their discharge between low and high water.

Some of the difficulties incidental to dam building, and consequent land flooding, were touched upon. One plant in New England having been built for an insufficient flood, had to pay more damages at the end of the first year than the plant. Next a good deal of data concerning improvements on the Susquehanna River was given. Many lantern slides of power stations were shown and fully discussed. Various forms of waterwheels were described, with the advantages of each kind, also the various typical methods for installing them.

The announcement concerning the annual banquet of Course II was given out. It will be at the American House, Monday, 9th, at 7.30 P. M. The speakers will be: Walter B. Snow, M. I. T., 1882; Prof. Gaetano Lanza, Prof. Harrison W. Hayward, and Prof. Edward F. Miller.

Wednesday evening a number of the graduates of the class of 1904 residing in or around Boston held an informal reunion in one of the small dining rooms of the Union. The evening was brought to a close by enthusiastic singing of Tech songs.

CALENDAR

FRIDAY, FEB. 26.

- 8 P. M. Chess—Tech vs. Brown.
- 8 P. M. Union Night—Dr. Sedgwick.
- SATURDAY, FEB. 27.
- 3 P. M. Class—Cross Country at Gvm.
- 8 P. M. Society of Arts—"Gas Powers."
- 8 P. M. Fencing—Tech vs. Penn at Phila.
- 8 P. M. Basket Ball—Tech vs. Rhode Island.