

THE TECH

VOL. XXXII. NO. 72

BOSTON, MASS., WEDNESDAY, JANUARY 8, 1913

PRICE TWO CENTS

LARGE CROWD PRESENT AT LAST T. C. A. TALK

Bishop Thomas Gives Interesting and Practical Address to Students.

A large crowd assembled in the Union yesterday noon to hear Bishop Thomas of Wyoming deliver the last of the series of T. C. A. talks of this term. The talk was practical, in that it touched on points essential to the welfare of all men present, for both the present and the future.

He commenced by giving three definitions of sin as quoted from the Bible and concluded with the idea that to the mature individual it was a matter of "caring." He said that the trouble with Wyoming was that it did not care. He cited the example of a man who refused to help his church. In writing, the Bishop asked the man if he would be one of fifty men to contribute to the church. In reply the man said that he "had as much use for religion as Darwin had for poetry; that his taste had been atrophied by disuse." This man was later brought around to see religion in a different light, and he became a leader in the church,—he had come to care.

But more important than this is the loss of our finer feelings of hope and aspirations, qualities that are natural to youth and that are gradually lost with the older man. He then stated that we can be made to care if we are occasionally pulled up to our responsibilities. To illustrate the working out of this principle Bishop Thomas told of some remarkable work that he had done in one of the vilest mining towns in Wyoming.

He ended his talk by emphasizing the point that if a man is to work out a principle it is necessary that he shall not delay, but commence at the first opportunity.

CATHOLIC MEETING.

Evolution to Be Discussed in Union by Rev. Cusick.

The Catholic Club of the Institute plans to have one of its most interesting meetings of the term tonight at 6 o'clock, and for the speaker they have obtained the Rev. Peter F. Cusick, S. J. The topic to be discussed is "Evolution," and the speaker will divide his talk into three parts, presenting the "Socialistic Views" of the theory of evolution. The Reverend Cusick is not only a learned scholar but also a chemist of note. Everyone in the Institute is invited to hear him.

D. O. DUNN RESIGNS.

R. A. Altton to Succeed Him as Treasurer of Musical Clubs.

The Executive Committee of the Musical Clubs has elected R. A. Altton, 1913, to succeed D. O. Dunn, 1914, as treasurer of the Musical Clubs. Due to illness, Dunn was compelled to resign. His successor, Altton, has been a member of the clubs for four years, and is at present manager of the Mandolin Club.

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PROVISIONAL SCHEDULE OUT FOR MID-YEAR EXAMINATIONS

Term Closes January 23. Examinations Begin Following Friday to last Eight Days. Second Term Opens February 10th.

The provisional schedule for the mid-year examinations, which begin on Friday, the twenty-fourth of this month, and extend over a period of nine days, is published in full below. This schedule, except for a few possible changes, will probably be the same as the regular official schedule issued by the Registrar.

The last exercises of the term will be held on Thursday, the twenty-fourth, and the examinations begin the next day and last until Saturday, February first, giving the students eight days of examinations, one day less than the mid-year's of last year, and three days less than the last final exams. The second term begins Monday, February tenth, giving in all three days more recess than last year.

All the classes have examinations up to the next to last day, while the Seniors and Juniors are kept until the very end. The Freshmen are all through Thursday, the thirtieth, except for German II, on Friday. The Seniors finish on Friday, except those who take Biology of Infectious Diseases, which comes on Saturday, the last day of the exams, while the Juniors are almost all busy up to the end. All get a week's vacation this year.

Conflicts may be arranged for by using the regular examination schedule, which will be published January thirteenth.

The schedule as it appears below is arranged as follows: Subject, subject number in the catalogue, year and time.

PROVISIONAL SCHEDULE.

Friday, January 24.

Alternating Current Mach. 650. Year, 4, G. Time, 9-12.
Bacteriology, Adv. 728. Year, 4. Time, 1.30-4.30.
Descrip. Geometry 101. Year, 1. Time, 1.30-4.30.
Dynamo Electric Machinery 661. Year, 3, 4. Time, 1.30-3.30.
European Civilization and Art 177. Year, G. Time, 9-12.
Food Analysis, Advanced, 649. Year, 4. Time, 1.30-3.30.
German, Advanced, 222, V, VII, VIII; 223, VI, X, XIV; 224, I, III, XI; 225, II. Year, 2. Time, 9-11.
Heat Engineering 385. Year, 3. Time, 9-12.
Military Science 990. Year, 1. Time, 9-11.
Structures 348. Year, 4. Time, 9-12.
Structures 351. Year, 4. Time, 9-12.
Theoretical Chemistry I 610. Year, 3, 4. Time, 9-12.
Theoretical Chemistry II 611. Year, 4, G. Time, 9-12.
Theory of Warship Design 916. Year, 4. Time, 9-12.

Saturday, January 25.

Applied Mechanics 80, II, XIII, XIII-A; 86, IV. Year, 4. Time, 9-12.
Bridge Design 355. Year, 4. Time, 9-12.
Economics of Corporations 193. Year, 4. Time, 9-11.
English Bible 160. Year, 3. Time,

1.30-3.30.

English Literature of XVIII Century 156. Year, 3. Time, 1.30-3.30.
English Literature 150. Year, 2. Time, 1.30-3.30.
Metallurgy 442. Year, 4. Time, 9-12.
Political Economy 190. Year, 3. Time, 9-11.
Prox. Tech. Anal. 629. Year, 4. Time, 9-12.
Structural Design 356. Year, 4. Time, 9-12.
Trigonometry, Plane 23. Year, 1. Time, 9-12.

Monday, January 27.

Biology, General 700. Year, 2. Time, 1.30-3.30.
Descrip. Geometry 108. Year, 2. Time, 1.30-4.30.
Descrip. Geometry 107. Year, 2. Time, 1.30-4.30.
Electric Light and Tr. of Power 663. Year, 4. Time, 9-12.
English, Entrance. Time, 1.30-3.30.
European Civilization and Art 176. Year, 4. Time, 9-12.
Geometry, Solid, Entrance. Time, 9-11.
Hydraulics 330. Year, 4. Time, 9-12.
Indust. Hygiene and Sanitation 752. Year, 4. Time, 9-11.
Machine Design 404. Year, 4. Time, 9-11.
Mining Engineering 459. Year, 4. Time, 9-12.
Physics, Heat 771. Year, 3. Time, 9-11.
Sugar Analysis 573. Year, 4. Time, 1.30-3.30.
Ventilation and drainage 928. Year, 4. Time, 9-12.

Tuesday, January 28.

Applied Mechanics 60, III, X; 65, II, XIII, XIII-A; 66, I, XI; 67, VI; 68 IV; 69, IV. Year, 3. Time, 9-12.
Central Stations 677. Year, 4. Time, 9-12.
Constructive Design 532. Year, 4. Time, 9-12.
Dynamo Design 667. Year, 4. Time, 9-11.
Dynamics of Mach. 401. Year, 4. Time, 9-12.
Economic Geology, 859. Year, 4. Time, 9-12.
Fire Assaying 433. Year, 3. Time, 1.30-3.30.
Indust. Chem. 580. Year, 4. Time, 1.30-3.30.
Mathematics 20. Year, 1. Time, 9-12.
Qual. Analysis 552. Year, 2. Time, 1.30-4.30.
Railroad Engineering 319. Year, 4. Time, 9-12.
Spherical Trigon. 24. Year, 2. Time, 1.30-3.30.
Theoret. Biology 704. Year, 4. Time, 1.30-4.30.
Vertebrate Anatomy 717. Year, 3. Time, 9-12.
Water Supply and Wastes Disposal 568. Year, 4. Time, 1.30-3.30.

Wednesday, January 29.

Chemistry 550. Year, 1. Time, 9-12.
Electrical Engineering, Elements of, 655. Year, 3, 4. Time, 9-12.
European Civilization and Art 175. Year, 3, 4. Time, 1.30-4.30.
Geometry, Plane, Entrance. Time, 1.30-3.30.

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BIG TOURNAMENT ENDS WITH HOYT AS VICTOR

Finals Included One of the Longest Games Ever Played in History of Club.

In the big chess tournament, now over, L. Hoyt was returned winner. He defeated Brown on Monday afternoon after one of the longest games ever played in the history of the club. This first game lasted from 2 o'clock until after 6, and included a total of seventy moves. It was splendidly played on both sides, and it was only the most careful playing that enabled Hoyt finally to win. The second game, which was also a good one on both sides, required but half the time, and consisted of only half as many moves as the first. By thus defeating Brown in two straight games, Hoyt wins the Chess Club championship, a title which was hard fought from the beginning. This tournament, with its splendid playing, shows that the club is in excellent condition and ready for contests with outsiders after the mid-year. A schedule has not been arranged as yet, but the Harvard return game is assured, and quite a number of other games are under consideration.

POSTER COMPETITION FOR 1913 TECH SHOW

All Contestants Meet Manager Whitwell Friday in Show Office.

A meeting of the contestants in the Tech Show competition will be held in the Show office on Friday afternoon, when G. E. Whitwell, 1914, of the Publicity Department, will give the final instructions regarding the work. It is absolutely essential that all who are working on posters, or who are intending to do so, should come to the Show office at this time and hear what is to be said. Should any of those posters submitted not comply with the requirements as given out at this time there will be no time in which to change the drawing, and the poster will be barred from the competition.

Because of the proposed extra trips this year to cities where the Show is not well known, it is obvious that the advertising is one of the most important parts of the work necessary to make the trip a success. In this the poster is the most important means at the disposal of the Publicity Department. It is for this reason that an exceptionally good poster is desired this year. The competition will close very soon after the mid-year vacation although no definite time has been set as yet. The time limit will be one of the things to be discussed at the meeting Friday.

CALENDAR.

Wednesday, January 8, 1913.
4.00—Course VII Talk—27 Pierce.
5.00—Hockey Practice—Arena.
6.00—Catholic Club—Union.
Thursday, January 9, 1913.
7.45—Hockey—Arena.
5.00—Tech Show Orchestra Rehearsal—Union.
6.30—Finance Committee Meeting—Union.

THE TECH

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WEDNESDAY, JANUARY 8, 1913

"WAS IST LOS?"

The financial report of the "Was Ist Los?" Committee is most gratifying, and we wish to extend our heartiest congratulation to the men who had the matter in charge for the success of the occasion.

EXAMINATION SCHEDULE.

It is rather unfortunate that so many of the most important examinations have been placed at the very first of the examination period, with no intervening time after the close of exercises.

This will, in many cases, give no opportunity for a little respite from the rather strenuous efforts of the last few days, a fact which in general is most essential to us all.

THE CONTEST.

It is unfortunate that we are unable to publish the results of the Pi Delta Epsilon contest this morning, as we had announced. This is due partially to unforeseen circumstances. First, the papers proved more difficult to judge than had been thought, and second, other duties intervened unexpectedly. We shall publish the results next Monday.

"WAS IST LOS?"

Financial Report Shows Nearly \$400 Cleared.

The following is the financial report submitted by the business manager of the "Was Ist Los?" entertainment, given December 19th, for the benefit of the Institute athletics:

ASSETS.

Sale of tickets.....\$423.50
Advertising 28.00

Total assets\$451.50
Note—Fifteen tickets not yet returned.

LIABILITIES.

Printing \$29.00
Janitor service 12.92
Costumers 12.00
Flowers 2.25
Typewriting75
Miscellaneous 1.66

Total liabilities \$64.08
Total assets\$451.50
Total liabilities 64.08

Balance credit\$387.42

COURSE XIII HOLDS ITS FIFTH MEETING

J. P. Constable, Speaker — Dues Must Be Paid by End of This Week.

The Naval Architectural Society held its fifth meeting of the year in Room 32, Eng. C, yesterday afternoon, at 4 P. M. The business of the afternoon was preceded by the usual roll call and minutes, after which the matter of new society shingles was discussed.

The next important matter to be taken up was the question of space in the Technique. The treasurer reported that the treasury was very low, as but comparatively few men have paid their dues, and it was thereupon decided that only those men who have paid up by the end of this week are to be considered members of the society for the insert.

J. P. Constable, president of the society, then read a paper on the installation of power in small boats. The talk was a very interesting one and was thoroughly enjoyed by those present. As is known, it is the custom of this society to have their talks rather by members of the organization than by outside men.

The next meeting will take place the first Tuesday next term. The speakers for this date have not yet been selected.

COMMUNICATION.

To the Editors of THE TECH:

The committee in charge of "Was Ist Los?" wishes to thank everyone connected with the performance for their hearty support and co-operation in making it the success it has been.

Special thanks are due to all those who participated in the show, and also Mr. Smith, superintendent of buildings and power; Mr. F. H. Rand, the Tech Show Orchestra, the Faculty and the entire student body.

For the Committee,
H. K. Franzheim.

COMMERCIAL OZONE.

Dr. Franklin Tells of Many Interesting Applications.

In 6 Lowell, at 4 o'clock, yesterday afternoon, Dr. Milton W. Franklin addressed about thirty men on the production of ozone and its commercial uses. He is at present in charge of the General Electric Company's laboratory at their plant in Schenectady, and has been investigating the production of ozone there for a number of years, as well as having studied the large ozone plants in Europe.

Dr. Franklin explained in some detail the various current theories of ozone production by means of the so-called silent electrical discharge between two oppositely charged plates. With several diagrams he was able to show how this change from the diatomic molecule of oxygen to the triatomic molecule of ozone could be wholly explained from the ionic theory now accepted by practically all physicists. This theory also accounts for the different results obtained when the potential and width of the air-gap are varied.

He then took up several of the difficulties encountered in the economical production of large amounts of ozone. One of these is caused by the lack of uniformity of the air between the two charged plates. This causes a difference of resistance and soon a spark passes across at one of the points of least resistance. The potential in the vicinity is then lowered and all the electricity passes through this portion of the air-gap, with the result that elsewhere very little ozone is formed. This difficulty may be overcome by placing some dielectric between the

(Continued to Page 3.)

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OZONE MANUFACTURE.

(Continued from Page 2.)

metal plates, which, on account of its non-conducting qualities, insures an even discharge.

Another of the difficulties was the rapid corrosion of the metal which composed the plates, for upon investigation it was found that not even the most resistant metals, such as platinum of gold, were free from this effect of the electrostatic field. At present there are two remedies in use: either making the apparatus so simple that the plates can be very easily removed and cleaned, or by the introduction of a second dielectric plate, so that all the discharge will take place between glass or porcelain rather than between the metal poles. The advantage of the first method is that the air-gap may be much smaller and the potential correspondingly less. The shape of the poles also influences the potential necessary for the operation of the machine.

Dr. Franklin described the machines developed in his laboratory in which the discharge takes place between a tin-foil coating on a glass tube and an enamelled steel cylinder inside of it. By a very ingenious device the air-gap can be made very small and at the same time a large volume of air can be ozonized. The low potential required by this machine makes it applicable to small units where there may be no competent engineer to care for them. He also stated that the machines most used in Germany were of this tubular type, while the French concerns seemed to prefer flat poles.

A few of the more important uses of ozone were then mentioned. In Europe it is used very extensively for water purification, a very large plant for this purpose being installed at St. Petersburg. The French and German ozone interests have already formed an alliance which intends to operate in America as well.

In this country, however, the most widespread use of ozone is for the destruction of offensive odors connected with the manufacture of certain bi-products, such as glue and fertilizers. Among the cases cited as illustrations of the importance of the utilization of wastes was that of the Russia Cement Company of Gloucester, which makes use of the heads, tails and fins of fish for the manufacture of liquid glue. Ozone is also used in the tanning, linoleum, fish oil and bleaching industries, and for the preservation of eggs and the aging of wines. In each case it is used because it is able to oxidize organic substances at much lower temperatures and more quickly than oxygen.

In answer to some of the questions asked by the men present, Dr. Franklin said that he had never experienced any ill effects from breathing air charged with comparatively large amounts of ozone, and that the proportion of the latter in ozonized air for ventilating was about one part in two million. Ozone has never been successfully used for increasing the amount of combustion under boilers, although at one time a man attempted to take out a patent on the process.

Dr. Franklin was sincerely thanked by all present for his talk on a subject of such interest and rapidly increasing importance.

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EXAM SCHEDULE.

(Continued from Page 1.)

Heat Engineering 387. Year, 4. Time, 9-12.
Hydraulics 337. Year, 4. Time, 9-12.
Hydraulics 331. Year, 3. 4. Time, 9-12.
Mineralogy 840. Year, 3. Time, 1.30-4.00.
Physics 770. Year, 2. Time, 9-12.
Surveying 303. Year, 3. Time, 1.30-3.30.

Thursday, January 30.

Algebra A, Entrance. Time, 9-11.
Electric Wiring of Buildings 670. Year, 4. Time, 1.30-3.30.
French I, Entrance. Time, 1.30-3.30.
Heat Engineering 385. Year, 4. Time, 9-11.
Mathematics 30. Year, 2. Time, 9-12.
Mathematics 32. Year, 2. Time, 9-12.
Naval Architecture 902. Year, 4. Time, 9-12.
Naval Architecture 901. Year, 3. Time, 9-12.
Organic Chemistry 592. Year, 4. Time, 9-12.
Quant. Analysis 559. Year, 3. Time, 1.30-4.30.
Railroad Engineering 313. Year, 3. Time, 9-12.
Storage Batteries 675. Year, 4. Time, 9-11.

Friday, January 31.

Bact. of Water and Sewage 748. Year, 4. Time, 9-11.
Foundations 349. Year, 4. Time, 9-11.
French II 241. Year, 1. Time, 9-11.
Geology, General, 856. Year, 2. Time, 9-12.
German, Elementary, 220. Year, 1. Time, 9-11.
German II 221. Year, 1. Time, 9-11.
Organic Chemistry 590. Year, 2. 3. Time, 9-11.
Precision of Meas. 772. Year, 2. Time, 1.30-3.30.
Technical Electrical Measurements 685. Year, 4. Time, 9-12.
Theory of Warship Design 915. Year, 3. Time, 9-12.
Theory of Warship Design 917. Year, 4. Time, 9-12.

Saturday, February 1.

Algebra B, Entrance. Time, 1.30-3.30.
Biology, Elements of, 701. Year, 3. Time, 9-11.
Biology of Infectious Diseases, 745. Year, 4. Time, 9-11.
Desc. Geom. 101, 103, College Class. Time, 9-12.
Food Analysis 571. Year, 3. Time, 9-10.30.
German I, Entrance. Time, 9-11.
Mining Engineering 458. Year, 3. Time, 9-12.
Water and Air Analysis 565. Year, 3. Time, 10.30-12.

PIKES PEAK NOT HIGHEST.

What is the highest mountain in Colorado? "Pikes Peak," nineteen persons out of twenty will answer, and incorrectly. The twentieth may know that the two highest mountains in the State are Mount Massive and Mount Elbert, both in Lake County, in the Leadville district. The altitude of each of these mountains, according to the United States Geological Survey, is 14,402 feet above sea level. The height of Pikes Peak is 14,108 feet. Moreover, there are fifty or sixty other peaks in Colorado approximately as high—over 14,000 feet. The lowest point in Colorado is 3,350 feet above sea level. Of all the States Colorado has the highest average altitude, estimated by the Geological Survey at 6,800 feet.

Although not the highest mountain, Pikes Peak is probably the best-known peak in the United States. There was at one time a weather bureau station on its summit, and it now has a substantial railway station at the terminus of the highest railway line in North America. It can also be reached by an excellent wagon road and trail which connect the summit with Colorado Springs.

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