E Aerostatics Course for the Institute


Before the Alumni Council, at its last meeting, Lieutenant Jerome C. Hunsdier, U. S. N., outlined some of the needs of education in aerodynam-ics with suggestions as to the courses that should be given. The Institute, President Macleau's report of ten days ago to the Corpo-ration, established the formation of the courses, making Technology the first institution in the country to begin the work of making adequate provision for developing the science of aerodynamics. Lieutenant Hunsdi-
er, who received his M. S. from Tech in 1912, has been detailed by the Sec-
ytee of the Navy for duty at the Insti-
tute, and having spent the summer abroad presents now an outline of the projected course. The correspond-ent of nature that work in the field of aerodynamics and a sketch of what is being done in Europe, edu-
cationally and experimentally in aero-
dynamics.

Lieutenant Hunsdier dwelt on the fact that the advances in the knowledge that must underlay all future work have come from skilled engineers. The guiding of the machine is in a way like the work of a chemist—it requires skill, ability, and qualities of co-ordination; but making of the machines must depend on the men technically trained. It lies with the technical college to prepare men for the specialty of aerodynamic work. It is only a question of time when aflight in which will present its problems to the engineer, and the engineers will be ready to prepare men for the specialty of aerodynamic work. It is only a question of time when a flight of what is

Sophomore Banquet to Have Innovations

Committee Plans Several New Features in Ticket Sale Limited.

The Sophomore banquet, which is to take place next Friday evening at 6:15, will, according to the committee, mark a new era in Tech's class dinners. Several important innovations are to be made, some of which have been marked public. Others are still a secret. The presence of the Class Baby, Malcolm Kemp, the son of E. L. Kemp, 1916, is promised as one of the special features. Whether Malcolm will make a speech or not has not been announced.

The speakers are to be Mr. David Crab, Instrutor in English, who is well known to Tech men for his entertaining and humorous talks and Assistant Professor W. E. Wickender, of the Elec-
trical Engineering Department. Other speakers will probably be chosen later.

Steward Colton promises a dinner and dance, though only fifty cents, will be quite different from the previous Union dinners. A new type of menu has been decided upon which will afford a choice of the usual Union fare.

Tickets may be obtained of the mem-
ers of the Sophomore Committee, the Class officers or in the Union. The sale closes on Thursday at 3 p.m. and pos-
tive tickets may be obtained after that time.

PROGRESS AT NEW TECHNOLOGY SITE

Five Concrete Towers In Place--Power Transforming Station Installed.

Four hundred men now employed at the New Technology Site are di-
ricted into small groups, each of which is at work on one unit of the general construction. Progress in the foundation work is steadily advancing; the pile driving is the three-hundred-foot Mechanical Engineering Building to the west is the grand court is half done, and all of the piles are in place.

The trenches for the foundation, and central portion of the building, have been dug, and excavations to reach the water have been carried to the river, making the outline of the Archirectural wing. This building will surround one of the main courts. At the eastern court a great steam boiler is being built for the powerhouse; the pile driving is the three-hundred-foot Mechanical Engineering Building to the west is the grand court is half done, and all of the piles are in place.

The first half started off tame, and for the first five minutes there was no score. On a rush down and a pass by Tuck, Mitchell scored the first goal for Dartmouth. On call work Dartmouth ran the score up a little higher with a goal. Counting three times, too. Seem to be out of their opponents, but her only chance to score was killed by Donahoe. Dartmouth's team work and Wannamaker's playing were the fea-
tures of this half.

Tech started the second half well by scoring its goal. Winton pushed the puck in on a pass, and Mitchell scored on the goal, which was off form the game was a runaway from that time. Dartmouth scored seven times, Tuck getting four of the goals. Both of Tech's goal tenders were off form and gave almost no opposition. The team itself played as well as might be expected. It has not the benefit of profes-
sional coaching as have its opponents. About five minutes before the end of the game MacLeod and Pendleton were substituted for MacLeod. Dart-
smouth Finished the game with six men.

The lineup was as follows.--

Dartmouth Team Defeats Technology

Tech Murrle, r w
Frost, w
Tuck, c w
Winton, c w
Wannamaker, r w
Macleau, Capt.
Johnson, c w
Good, c w
Delinger, p w
Cochran, g w
Chandler, g w

First half: Goals—Merrill, Frost 3; Second half: Goals—Wannamaker (2), Winton, Tuck 4, Bowler.

Substitutions: Stone for Sawyer, Longfellow for Chandler, Howard for Winton, Tuck, d w.

Basketball Game

Freshmen Play Sophomores At Gymnasium Tonight.

At eight o'clock tonight the Sophomores will meet the Freshmen in basketball in the Tech Gymnasium. A hard game is expected by the Sophomores, a game worth seeing, and a special appeal is made to every classman to attend. The lineup is as follows:--

Tech 1915
Merrill, r
Tuck, c
Frost, w
Winton, c w
Sawyer, w

STOKE CORNER

Freshmen are expected to be out for the Sophomore game, and victory is expected.

Weather

For Boston and vicinity: Today: Partly cloudy; northerly moderate, variable winds.

CALENDAR

Tuesday, December 30, 1913.

4:00—Tech Show Preliminary Match, Competition Station 800. Basketball, 1916 vs. 1917--Gym.

The University Echo from Chatta-
nooga claims that trouble will result from the "promises of expectation" about the halls of the college.
supported contest. The businesslike manner in which J. G. Fairfield '16, Treasurer, has arranged the finances of the student body, will meet with the approval of sports desirable, and any effort to do so will be useful for testing the fumes from various parts of the earth where platinum is known to be present in small quantities, for deposits far poorer than those at Wenden would prove lucrative for developing, owing to the ever increasing demand for this metal. The annual supply now is about 30,000 pounds, valued at $40,000,000. One third of this is used in dentistry and one third in electro-technical work.

If you wish to help reduce the cost of living you should insist on eating "de-chlorinated chicken" that does not give you headaches. The following account shows a new and promising application of electricity to the farm.

"Chickens weighing a few ounces only and about twelve weeks old were so highly charged with electricity that the fingers on touching them, although vigorously, were so highly charged with electricity that the fingers on touching them, although vigorously, were so highly charged with electricity. They were so highly charged with electricity that the fingers on touching them, although vigorously, were so highly charged with electricity. They were so highly charged with electricity. The rate, thus doubling the output of a chicken farm, and halving the food bill per chicken."

In Charge of This Issue
Editor—P. W. MacNeill '15, Assistant—B. N. Stimpson '16, C. W. Lacy '15, Advertising Manager

Basketball

Unusual interest will be felt this year in the basketball series between the freshmen and sophomores. Since basketball has ceased to be a varsity sport, the class teams have been the only representatives of the Institute in this field. Both teams have done creditable work so far this season, and should make a splendid finish in the contest. The businesslike manner in which both classes have financed and supported their teams has attracted much favorable comment.

We understand that there is some desire on the part of the basketball managements to restore the sport to the position it held two years ago. It has always been the custom at Tech to drop a sport as soon as the support given it falls so far that the school is paying money for the personal convenience of the few men who are equally interested in it. This was done with tennis when the team was put under efficient form and doing credit to Tech; it was also done last year with basketball when both the team and its public were poor.

The attempt to restore varsity basketball will succeed if the men behind it show that it was a real proposition, and that the new team will make a showing along for a few years to come, a second demote. The nature of athletics at Tech is such as to render participation in a large variety of sports desirable, and any effort to do this will meet with the approval of the student body.

THE TECH SHOW

The Preliminary music competition for the Tech Show will be held in the Union at four o'clock this afternoon. The music is called in now to see what the men have been doing, and to help them work along the right lines. The final competition will be closed next week, so that all men should be at this meeting to have their work criti- cized. Frank Surls is to be in charge and will act the referee. On account of the large number of men who are writing music this year, very good music is ex- pected for this year's Show.

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Massachusetts Aggies. 'rile Harvard inter league has been awarded to the I. C. A. A. the finals being in the 60 yard and 220 yard arc the other men entered, both being in the 60 yard and 220 yard events. Wilson was able to get into the finals in the 100 yard dash in the I. C. A. A. A. two years ago. He is a fast man, and should show up well.

The rifle championship in the eastern college league has been awarded to the Massachusetts Aggies. The Harvard team was disqualified.

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Special dish served for two at moderate prices. For banquets large or small see Mr. Hyams.

NEW TECHNOLOGY
(Continued from page 1)
With the new locotyst which has been found for gravel for concrete, the materials are now all at hand. The five spur track systems that have been built for distribution will soon be connected with the H. & A. system.

During the last two weeks the fire-protection service has been extended. The main line has been brought the length of the hot and sixteen fire-plugs, each with hundred feet of hose, are now ready for use. In addition to this equipment, each trolley is fitted with water barrels for emergency use.

The first five thousand tons of reinforcing steel is on hand, and considerable work has been done with the heading machine. A small engine has been installed, the sole work of which will be to drive the steel from its bin a length at a time to the header.

Those who have occasion to pass the Site will notice in different places cubical piles of iron. These mark the testings of different kinds of concrete piles. The general nature of the soil on the river bank and throughout the Back Bay is such that the larger structures have settled more or less. At Technology it is the intention to avoid as much as possible. Accordingly the experiments of Professor Crosby were undertaken eighteen months ago, which determined the nature of the underlying strata and now to give a measure of the sustaining strength of various patterns of concrete piles, sample piles have been placed and are being tested by means of loads up to 40 or 50 tons per pile.

Buildings are multiplying in different parts of the grounds so that there is quite a village. Each unit has its headquarters, boat-house steamboats and other houses, while others are for the race of the whole. The little house at the corner of Massachusetts Avenue and Vassar street has excited much curiosity. It is a transforming station where the current of the Cambridge Electric Light Co. at 2200 volts is stepped down so as to be serviceable for lighting and power. There are a good many uses made of the current, for half a dozen pumps are at work draining the trenches, and other motors are used in the various shops.

FACULTY NOTICE
The Political Economy Lectures will not be given between December 30 and January 3, inclusive.

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ARDOYNOIICS

(Continued from page 1)

The United States will adopt such methods as are not impossible that the demand for skilled specialists may be supplied, and it is exceedingly desirable that a body of men be already educated in the special lines that will be needed in the development of air-craft. Mr. Hunsaker believes it would be unfair to students to make of them nothing but engineers of aerodynamics, for it may be some time before such specialists are required, but at the same time it is realises that with the engineering training already established at Tech, the subject is practicable and not difficult to institute courses which will replace certain present options by others which better qualify on the speciality.

"Such a course" he said, "would need to be given an advantage in one year's time. There should be instruction in advanced mathematics, rigid dynamics, fluid dynamics, experimental aerodynamics, explosion motors, water-current, propeller, aeroplane and dirigible design, patent law, physics of gases, chemistry of oxygen and general mathematics of flight." Much of the study would be of the work of European so that students are familiar with the application of each information to design. In the past condition of knowledge of aviable information is incomplete and often contradictory. It will therefore be necessary to undertake research experimental work. A wind tunnel of the type used in England will therefore be necessary and to be installed without waiting for the technology to get to its new home.

An aerodynamic laboratory will be desirable and necessary both for research and industrial testing. The designing made by a student can be tested by himself in the wind tunnel and served good or bad. Further than this, if a systematic series of models are designed and tested, some contribution to knowledge must in certainty be made. Wind tunnel also be also provided for the engines of air-craft in a very especially fitted for the aerodynamicists. Aerodynamics is a field in which there is much to learn and it is practically impossible for instruction to be given in a few years. Structural failures, formerly the rule, are now the exceptions. In other words the results of the research laboratory are patent.

In England research is carried on most actively at the National Physical Laboratory on models and at the Royal Air-Craft Factory on full-sized machines. Practically unlimited funds are available. At Northampton Institute in England evening courses are given in aeronautical engineering and the school has a wind tunnel. In France the foremost civil engineer, M. Gustav-Eiffel, from whom an aeroplane factory has an output of one thousand airplanes a year, and is working on his heavy records in an experimental laboratory at Chalais-Meudon, and the University of Paris has attached to its technical laboratory at Suresnes a department of aeronautics. The Ecole Superieure d'Aeronautique has been founded to educate engineers in the work and three courses are given by the most eminent specialists in France. Forty men were graduated last year.

In Germany the University of Gottingen has an aeronautical laboratory to which only candidates whose degree are admitted as research assistants. The Technical High School at Berlin has special courses in aeronautics, and have laboratories. Further, the German Society for Aeronautics maintains a research laboratory at Aldersfoz, near Berlin.

From all this it is evident that in the United States it is only a little time when aerial navigation will present problems to the engineer. It is the function of our educational system to supply the technically trained men when they are required for present and the well-established mechanical interest in aircraft, as naval engineers may be called upon in the near future to become aeronautical professionals. It is in preparation for just such a call that the Massachusetts Institute of Technology has announced its courses in aerodynamics.

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