

THE TECH

VOL. XXXIII. NO. 120.

BOSTON, MASS., TUESDAY, JANUARY 13, 1914.

PRICE TWO CENTS

GENERAL CONVOCATION TOMORROW NOON

President Maclaurin To Answer Questions on Tech-Harvard Agreement.

A general convocation of students will be held tomorrow noon at 1.30 P. M. in Huntington Hall. President Maclaurin will give a short address on the Harvard-Technology alliance, the topic of the hour. All students will be invited to ask questions, and the President will be ready to answer any questions which the students may ask concerning the alliance. It is hoped that all will turn out to hear from an authority about this event, which is of great moment to all Tech men. A copy of the agreement between the two institutions is given in this issue.

TECH SHOW LYRICS

Final Cut To Be Made Thursday By Coach Sanger.

Thursday afternoon at 4 P. M. the final cut in the music will be made by Coach Sanger. The lyrics have been out for over three weeks now and very good results are expected. There has been plenty of time to polish off the rough edges of the original and to have it in a form in which Mr. Sanger will be able to decide upon the appropriate numbers.

The book for Tech Show, 1914, is said to be very good, and with some catchy music it is expected to be the best Show which has been produced in several years. The lyrics also are said to be very catchy and should add a great deal to the book.

All men who have done anything at all for this competition should be on hand Thursday, for his work may be accepted although he may not think it worth reading.

RIFLE TEAM MATCH

Tech vs. North Georgia Aggies In Armory Tomorrow.

Tomorrow afternoon, beginning at four o'clock, the Rifle Team will shoot against the North Georgia Agricultural College at the First Corps Cadets Armory on Columbus Avenue. This is the second of Tech's matches in the intercollegiate shoot. President Haslam of the Rifle Club expects that his team will make a better showing than it did last Tuesday, as the new men have now recovered from their first nervousness. E. W. Taft will umpire.

EPISCOPALIANS MEET

This evening at the Trinity House the Brotherhood of St. Andrew will hold the last meeting of the term. The meeting is called primarily for the election of officers, and so is considered as of first importance. The Trinity House is at 93 St. James Ave.

Problem books in optics and electricity are out at last.

TEXT OF TECHNOLOGY-HARVARD AGREEMENT HERE GIVEN IN FULL

Issued To "The Tech" From President Maclaurin's Office Yesterday—Exact Wording Made Public For First Time.

THE TECH here presents the agreement between the Institute and Harvard University verbatim, that M. I. T. students may see the exact relationship which will exist between the two institutions.

AGREEMENT between

THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY
and
HARVARD UNIVERSITY

In this agreement, "the Institute" means the Massachusetts Institute of Technology, and "the University" means Harvard University. It is understood that any action of the President and Fellows of Harvard College shall require the consent of the Board of Overseers wherever such consent is necessary under the laws governing the University.

I. The University and the Institute shall be unaffected in name, organization, title to and rights over property, or in any other way not specifically mentioned in this agreement.

II. The University and the Institute shall co-operate in the conduct of courses leading to degrees in Mechanical, Electrical, Civil and Sanitary Engineering, Mining and Metallurgy, and in the promotion of research in those branches of Applied Science. The courses and research shall be conducted in accordance with the provisions of this agreement and in the site in Cambridge recently acquired by the Institute bordering on Massachusetts Avenue and the Charles River Embankment or on any other site that may be agreed upon should conditions render an extension or change of site desirable.

Funds and Fees.

III. Subject to the reservations hereinafter set forth the University shall devote to the purposes referred to in Section II the net income of all funds that are credited on its books to the Lawrence Scientific School; also the use of all machinery, instruments, and equipment that are suited to these purposes and that the University does not in its opinion need more urgently for other purposes; also not less than three-fifths of the net income of the Gordon McKay Endowment; also the income of all property that it may acquire hereafter for the promotion of education or research in the branches of Applied Science referred to in Section II; also such further sums as it may from time to time feel able to contribute.

IV. Subject to the reservations hereinafter set forth, the Institute shall devote to the purposes referred

to in Section II all funds, or the income of all funds, that it now holds or hereafter acquires for the promotion of education or research in the branches of Applied Science mentioned in that section, and in addition to this as much of the funds, or the income of funds, that it holds for general purposes as is not in its opinion more urgently required for other purposes.

V. Students' fees for courses in the branches of Applied Science mentioned in Section II shall be devoted to the purposes referred to in that section. These fees shall for the first ten years be deemed to be contributed by the two institutions in proportion to the number of the students following these courses in the Institute and in the University's Graduate Schools of Applied Science, respectively, during the year 1913-14. At the end of ten years a different arrangement shall be made, if, in the opinion of the Corporations, it appears to be more equitable. The fees of students pursuing courses in the subjects referred to in Section II in the University's Graduate Schools of Applied Science at the time when this agreement is adopted shall be unaffected by any change brought about by this agreement. For all other students the amount of the fees for complete courses leading to those degrees of the Institute and of the University that are granted through the operation of this agreement shall be \$250 per annum until changed by agreement between the two Corporations. The amount of fees for partial courses and for research shall be determined as may be agreed upon from time to time.

VI. The funds available for education and research in the branches of Applied Science referred to in Section II shall be expended through the Bursary of the Institute in the payment of salaries, the maintenance of scholarships, the care of grounds, and the erection and maintenance of buildings and equipment or otherwise as may be agreed upon from time to time, it being expressly provided that all proposed appropriations shall be approved by the Corporation that supplies the funds, and that buildings shall be erected only from the share of the funds supplied by the Institute.

VII. All members of the Instructing Staff in the departments of Mechanical, Electrical, Civil and Sanitary Engineering shall be appointed by the Corporation that supplies the funds. (Continued on page 3)

The Rifle Club doesn't have to go far to shoot those North Georgia Aggies.

JUNIOR CLASS PHOTO TO BE TAKEN THIS NOON

Men Will Meet On Rogers Steps After Lecture In Political Economy.

Every Junior is expected by his class officers to turn out today for the class picture. The men are to assemble on Rogers steps promptly at one o'clock. The hour has been chosen in view of the fact that most of the class will be coming then from the lecture in Political Economy, and President Scully hopes that any who do not take this subject, and who are not in Rogers from twelve to one, will make an especial effort to be on hand. The officers feel that the notice of the picture has not received sufficient publicity, but are doing all in their power to bring the men out this noon.

MUSICAL CLUBS

Meeting At Five O'clock To Elect Vice-President And Secretary.

There will be a meeting of the Combined Musical Clubs this afternoon at five o'clock in the Union to elect a vice-president and secretary. This time has been chosen because the Glee and Banjo Clubs are rehearsing at five o'clock, which will make it most convenient for everyone. The business to be taken up is very important, but will not occupy much time and will in no way interfere with the rehearsals. The members of the Mandolin Club, as well as the members of the other Clubs, should make a special point of appearing on time in order not to delay the rehearsals.

1911 CLASS DINNER

The class of 1911 will hold its next class dinner at the Tech Union, on Saturday evening, January 24, at 6.30 P. M. George C. Kenney, a classmate will tell of his recent experiences while on railroad work in northern Canada. The dinner is to be entirely informal, and the charge is \$1.25. Members of the class are requested by the class secretary to reply to Herb Fryer before the 20th.

WEATHER

For Boston and vicinity: Fair and colder; high westerly winds.

CALENDAR

Tuesday, January 13, 1914

1.00—Junior Class Picture—Rogers Steps.
4.00—Rifle Match vs. North Georgia Aggies.
5.00—Musical Clubs Meeting.
7.15—Brotherhood of St. Andrew Meeting.
7.30—Architectural Smoker—Architectural Rooms.

Wednesday, January 14, 1914.

1.30—General Convocation—Huntington Hall.
4.00—Chess Club Meeting—Union.

1915 CLASS PICTURES--ROGERS STEPS, 1.00 P.M.

THE TECH

Entered as second-class matter, Sept. 15, 1911, at the postoffice at Boston, Mass., under the act of Congress of March 3, 1879.

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TUESDAY, JANUARY 13, 1914.

In Charge of This Issue:

Editor—P. W. MacNeill '15
Assistants—R. B. Springfield '15, J. G. Fairfield '16.

The convocation to be held tomorrow is just what is needed to clear up the conflicting ideas which are afloat concerning the exact meaning of the agreement with Harvard and the way in which it will work out. It is unnecessary to urge all to attend, but each man should be ready to put at least one sensible question, so that the obscure points may be cleared up in the short time available.

Whether or not THE TECH will be issued during the rest of the week will depend upon the amount of available news matter. Usually we are able to run during the week before exams and one or two days at least of the week during which the exams start; but this term there seems to be so complete a suspension of student activity that we shall be hard pressed to find two cents' worth a day for the rest of the week. We have men enough to do the work, in spite of the fact that they feel as strongly as anybody the need for plugging before mid-year's.

We should not think of expressing on our own responsibility an opinion so sweeping as the one commented upon in today's communication; the statement comes from a much more authoritative source. That statement we emphatically reaffirm, for while there have been many tremendous advances in movements already under way, such as that to which our communicant alludes, the step in question is an entirely new departure,

ENGINEERING AND SCIENTIFIC NOTES

Organized observation, and a good deal of it, still leaves a great deal of it, still leaves a great deal to be explained concerning the character of fireballs—which used to be called thunderbolts—and meteor trains. The "meteor section" of the British Astronomical Association continues faithfully to report instances of fireballs and of luminosity accompanying and following the appearance of meteors or shooting stars in the sky. Four authenticated and recent instances are quoted by the Rev. M. Davidson in the current number of the association's journal. The first was a fireball occurring at a calculated height of about seventy-six miles and disappearing at a height of forty miles; the second a meteor train in which the path of light lasted for two seconds; the third a fireball with a trail lasting fourteen seconds, and which was apparently one of the Perseid meteors of August; and the fourth a meteor train lasting some seconds. With regard to fireballs we find ourselves in the difficulty experienced by Mr. De Morgan's schoolboy who was asked to define a rhomboid—"it all depends on what you mean by a rhomboid"—for fireballs are of two kinds. There are the fireballs which have sometimes been credibly reported by mariners and which during thunderstorms, actual or imminent, play about the masts and rigging. These are not discredited, but have been explained as electrical phenomena such as can be repeated by appropriate means in a laboratory. Then there are the fireballs which of old were called thunderbolts. One was reported in the London Morning Post nine years ago, when observers of a thunderstorm at Bowers Gifford, Essex, affirmed that accompanying a peculiarly vivid and explosive lightning discharge they perceived "a cylinder," or "a ball of fire" descend and explode, "casting darts" in all directions. The Rev. C. F. Box added that next day they found in an oatfield three distinct sets of circular holes, ranging from nine inches in diameter downwards, which were drilled as neatly as with an augur. There was no evidence of a meteorite; the "thunderbolt" may have been an illusion caused by ball lightning, which is an admitted phenomenon.

The other kind of fireball still less open to dispute is that which accompanies the appearance of meteors in the sky and may also be partially an optical illusion, for as Dr. W. F. Denning, the referee for meteors, has found, human evidence and human memory in these matters is far from infallible. But that meteors can leave a trail of light is certain, and the only matter of uncertainty.

COMMUNICATION

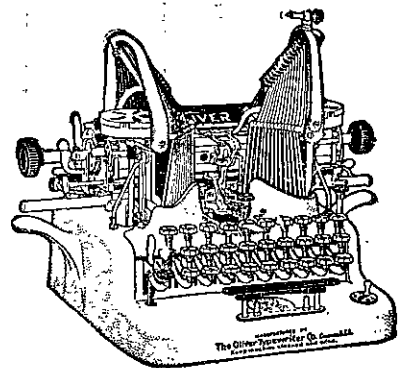
To the Editor of THE TECH:

There may be two opinions as to the advantages to Technology of the cooperative scheme announced in your issue of today. But however that may be, to refer to the plan as "the most important forward movement that education in this country has ever witnessed," is a trifle absurd. What would you say of the general establishment of public schools in Massachusetts in 1643? I fear the axis of the earth is sticking out again.

Very truly yours,
Howard L. King '15.

marking the beginning of an altruistic era of self-abnegation on the part of educational institutions which will ultimately terminate the selfish and wasteful competition heretofore so universal.

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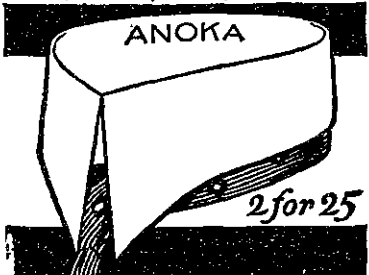
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ENGINEERING NOTES

(Continued from page 2)

tainty is how and why they do it. Professor Trowbridge some years ago compared the phosphorescence of a meteor train to the afterglow which follows certain forms of electrical discharge in partial vacuum tubes. This suggestion was revived and elaborated at a recent meeting of the British Astronomical Association, and the presence of ozone at low pressures was suggested as an auxiliary. But, as the Rev. M. Davidson points out, there are a good many difficulties in the way. One is the state of thinness of the gas in which phosphorescence arises. It is known that phosphorescence is best developed at certain pressures. These pressures correspond to heights between 36 and 56 miles of the atmosphere. But many meteor trails are observed at heights which are double this. Again, a temperature of 300 degrees will extinguish the glow in an exhausted tube in the laboratory, and it is certain that the temperature of a falling meteor is higher than that. Moreover, hydrogen cannot be made to glow, and most meteor trails appear where we suppose the atmosphere to be chiefly hydrogen. Evidently either the theory is wrong or the present beliefs of the constitution of the upper air must be revised.

ARCHITECTS WILL SMOKE

Mr. L. C. Newhall To Address Society Tonight.

The Architectural Society will hold a smoker tonight in the Architectural Rooms at 7.30. Mr. L. C. Newhall, President of the Boston Architects' Club, will give an informal "Shop Talk." Mr. Newhall was formerly a student at the Institute in Course IV, and since leaving Tech studied in Paris. He is now of the firm of Newhall and Blevins, Architects, and has designed a number of important buildings in Boston and vicinity, among them the Cambridge Y. M. C. A.

HARVARD AGREEMENT

(Continued from page 1)
tary Engineering, Mining and Metallurgy, who give instruction in courses leading to the degrees both of the University and of the Institute, shall be appointed and removed by the Corporation that pays their salaries after consultation with the other Corporation.

Registration and Degrees

VIII. All students registered at the Institute in the various numbered professional courses covered by Section II that lead to degrees of the University shall be deemed to be prospective candidates for such degrees, unless they signify a contrary intention, and shall be entitled to the same rights and privileges as students in the professional schools of the University.

Administration.

IX. The President or Acting President of the Institute shall be the executive head for all the work carried on under this agreement. As an evidence of his responsibility in directing it he shall make an annual report to both Corporations. When any future President or Acting President is to be selected, the President or Acting President of the University shall

(Continued on page 4)

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HARVARD AGREEMENT

(Continued from page 3)

be invited to sit with the committee that recommends the appointment of a President or Acting President to the Corporation of the Institute.

X. As soon as this agreement goes into effect, the Faculty of the Institute shall be enlarged by the addition thereto of the professors, associate professors, and assistant professors of Mechanical, Electrical, Civil and Sanitary Engineering, Mining and Metallurgy, in the University's Schools of Applied Science. These persons shall acquire the titles and privileges of the same rank in the Institute while retaining their titles and privileges in Harvard University, and the terms and conditions of their employment and their salaries shall be unaffected by the change. The professors, associate professors, and assistant professors of the Institute in the departments of Mechanical, Electrical, Civil and Sanitary Engineering, Mining and Metallurgy, shall acquire the titles and privileges of the same rank in Harvard University while retaining their titles and privileges in the Institute, and the terms and conditions of their employment and their salaries shall be unaffected by the change. All professors, associate professors, and assistant professors appointed under the operation of Section VII shall have the titles and privileges of professors of the University and of the Institute, including the right to benefit from the pension systems of both institutions.

Additions to the Faculty of the Institute shall be made by the appointment of professors, associate professors, or assistant professors under the operation of Section VII, or by the Corporation of the Institute for other purposes. The Faculty constituted as indicated above shall, subject to such directions as may be given by the Corporation of the Institute, prescribe the courses and conditions of entrance thereto leading to all degrees granted by the Institute. The same Faculty shall, subject to such directions as may be given by the Corporation of the University, prescribe the courses and conditions of entrance thereto leading to all degrees granted by the University under the operation of this agreement.

XI. Degrees shall be conferred by the Institute and by the University acting separately on the recommendation of the Faculty referred to in Section X.

Restricted Bequests.

XII. It is expressly provided that as regards the funds and property of the University and of the Institute respectively referred to in Sections III and IV, this agreement shall be subject to any special terms and requirements upon which such funds and property may be held; and any property or funds that may be held at any time by either Corporation under such terms and restrictions as would prevent their use precisely as is indicated in this agreement, shall, nevertheless, be used by the two Corporations respectively for the support, benefit or encouragement of a co-operative effort in the field of education and research in engineering and mining in such manner as may be permissible or in accordance with the trusts upon which they may be held.

XIII. Whereas, doubts might arise as to the legal effect of an omission from this arrangement of any provision for its termination, it is hereby provided that the agreement may be terminated either by the University or by the Institute, but that no termination shall be made except

upon notice from one party to the other of at least five years unless a shorter time be mutually agreed upon.

XIV. This agreement shall take effect when finally adopted and approved by the Corporation and Board of Overseers of the University and the Corporation of the Institute; and the co-operation referred to in Section II shall begin when the Institute is ready to open courses in Engineering and Mining on the site in Cambridge mentioned in that Section.

At least one member of the student body will give a T. C. A. talk next term.

The City of Boston and the Brotherhood of St. Andrew will hold elections today.

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