

THE TECHNOLOGY REVIEW

RELATING TO THE MASSA-
CHUSETTS INSTITUTE
OF TECHNOLOGY



PUBLISHED AT
491 BOYLSTON STREET BOSTON BY THE
ALUMNI ASSOCIATION

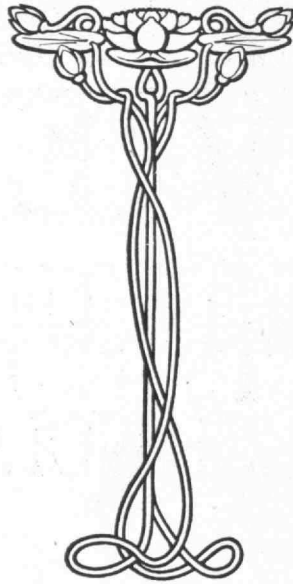
Entered as second-class mail matter
at Boston Post-Office.

MONTHLY NUMBER

Monthly, except August, September
and October.

Price 10 cents.—Subscription Price \$1.50

CHICAGO



FEBRUARY

20-21

Program:—The Time of Your Life

The Technology Review

VOL. XVI

FEBRUARY, 1914

No. 2

COÖPERATION BETWEEN THE INSTITUTE AND HARVARD

Work of the Harvard Graduate Engineering Schools to be carried on at the Institute—Details of the arrangement which eliminates much duplication of effort in these institutions.

On January the 10th an announcement was made of an agreement which had been entered into by Technology and Harvard University, under the terms of which the Institute in effect takes the graduate schools of applied science of the University, its teaching staff and engineering equipment, and opens to the students in the courses which the University has been maintaining a degree from the Institute or from Harvard or from both.

This plan of coöperation eliminates the duplication of work that has been conducted by the two institutions in these lines. It gives the Institute the added income of the interest on the present endowment of the Lawrence Scientific School and on at least three-fifths of the Gordon McKay bequest. It strengthens its teaching corps by the addition of sixteen professors from the University, four of whom are Tech men, and it indicates a spirit of coöperation between two great institutions that is being cordially endorsed by educational authorities and the general public.

The courses affected are those leading to degrees in mechanical, electrical, civil and sanitary, mining engineering and metallurgy. The other courses of the

Institute are in no way affected. Students taking these courses can elect to be candidates either for a Harvard degree or for an Institute degree or for both. They will be entitled to the privileges of students in the *professional schools* of Harvard University, which will give them the right to use the libraries, museums, etc., and to attend, without payment of fee, certain lectures outside their regular curriculum.

In the words of the Honorable Richard Olney, "the agreement spells coöperation and nothing more." The University and the Institute remain absolutely unaffected in name, organization, title to or rights over property. Each retains absolute control over its own financial resources. Each is free to lay down such regulations as it may see fit in regard to the courses leading to its own degrees.

The agreement itself was unanimously approved by the Corporation of Harvard and by the Executive Committee of the Institute's Corporation. It was presented simultaneously to the Corporation of the Institute and to the Board of Overseers of Harvard on Friday, January 9. The motion for its adoption was passed by the Board of Overseers with one dis-

sentient. A similar motion, made in the Institute's Corporation by Colonel Livermore and seconded by Mr. Munroe, was passed with two dissentients.

As the subject is an important one to the Institute and to the public, this issue of the REVIEW is largely devoted to it. The full text of the agreement is given elsewhere. Various comments on this text have been made by the President in addresses to the Corporation, Faculty,

students and to the alumni. In so far as these are available, they are set forth here. The most comprehensive of all was the careful analysis of the agreement made in an address to the Alumni Council. Unfortunately, complete notes of this address were not taken, so that it is impossible to reproduce it accurately. An attempt has, however, been made to cover the ground after the President's manner.

THE PRESIDENT TO THE CORPORATION

The advantages of coöperation between the Institute and Harvard have been for so long the subject of discussion amongst the members of the Corporation that it must be unnecessary for me to deal with them here, especially as my views have been expressed on various occasions in reports to the Corporation and elsewhere. With reference to the particular plan of coöperation that is now put forward, I beg to make the following statements:

1. The Honorable Richard Olney, in a carefully considered legal opinion, says "Coöperation between educational institutions for a legitimate purpose common to both is certainly not illegal and in this case wholly desirable. The 'Agreement' seems to me to spell coöperation and nothing more, involves no merger of corporations or their property interests, and can be carried into effect without violation of charters or of the trusts upon which funds are held."

2. Its adoption by the Corporation is unanimously recommended by the Executive Committee.

3. It is approved by each of the last five presidents of the Alumni Association, and by the president-elect. The president of the Alumni Association, Mr. Frederic H. Fay, writes: "I heartily commend this effort on your part, and I believe that when it is found that an agreement, such as you have proposed, can be carried out to the satisfaction of the authorities of both institutions, you will find that you have the great body of Tech alumni behind you, and that you will have added to the prestige,

and usefulness and strength of the Institute."

4. It is approved by all the heads of the Institute's departments that are directly affected and by all the other senior members of the Faculty who have been consulted with reference to it.

5. It leaves the Institute so entirely independent that it can appoint any officer or instructor that it pleases, it can appropriate its funds as it pleases, and it can make any regulations that it pleases with reference to the courses leading to its degrees.

I venture to express the hope that this suggested agreement will commend itself to your judgment because I believe that its adoption would be a forward step of very great import to the future of education in this country. Incidentally, it would be of great advantage to each of the coöperating institutions, but it would be especially significant in the emphasis that it would give to the fact, so often overlooked, that educational institutions do not exist for themselves and that their sole duty is to make the best provision that can possibly be made for those who are rising to manhood and for their successors. Under the scheme of coöperation here proposed, it would be possible to maintain a much stronger school of applied science than either institution alone could furnish, and it would be possible to keep that school practically unrivalled in America, and indeed, in the world.

RICHARD C. MACLAURIN.

January 1, 1914.

FULL TEXT OF THE AGREEMENT

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 cooperate 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 on 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 future 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 the proportion of the numbers 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 two 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, 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 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 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 coöperative 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 coöperation 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.

THE PRESIDENT TO THE ALUMNI COUNCIL

The Alumni Council in recent years has taken a large part in shaping the policies of the Institute. It has initiated many important movements and, by its interest and activity in the affairs of Technology, has done much to strengthen the hands of the Corporation on whom the ultimate responsibility for the conduct of the Institute's affairs must always rest. Under these circumstances, it seems fitting that the Alumni Council should have an opportunity of learning in an authoritative way of some of the larger projects that are before the Corporation. The project for closer coöperation between the Institute and Harvard is one of the largest questions with which the Corporation could be confronted, and it is one in which every alumnus and particularly every member of the Alumni Council must be deeply interested. Schemes for alliances of various kinds between the two institutions have been so long before the public and have been so much the subject of discussion amongst the alumni that it may well be that the chief difficulty that the alumni will have with reference to the present scheme will be to dissociate it in their minds from earlier schemes to which it may have only a superficial resem-

blance. The plan, of course, should be considered on its merits without regard to anything that has gone before.

It is well to realize, at the outset, that there are radical differences between the situation as it exists today and that which existed on any earlier occasion when intimate association with Harvard has been suggested. One simple fact is sufficient to prove this. The plan has been submitted to the president of the Alumni Association, to the president-elect, and to the five past presidents, who are *ex officio* members of the Alumni Council. In this group are to be found men who strongly opposed as well as some who supported the earlier plans. Today they are absolutely unanimous in approving the present scheme, and approving it without any qualification whatever.

The object of the plan is to have a single school of engineering in this community—a school of unrivaled power—instead of two competing schools, and the arrangement is such that in this great school the ideals of the Institute are bound to prevail and its methods of instruction and its general educational policies are bound to be continued unless

those methods and policies are modified as a result of change of view within the Faculty itself. Two schools in the same community might be justified if they appealed to students of a different age or class, or if they pursued radically different ideals or used markedly different methods of instruction. Here we have to face a fact and not a theory. The men who go to the Harvard School of Engineering could all be duplicated within the Institute. They are of the same age, of similar previous training and similar origin, and they have the same ends in view. Do not allow yourselves to be misled by names, and do not think for a moment that the name "graduate school" that has been used at Harvard really differentiates the work there from what is done within the Institute. The Harvard school is a graduate school merely in the sense that the students must have been graduated from a college before beginning their work in engineering. The Institute has about five times as many men of that type as has Harvard. Further than that, the Institute has demonstrated by long experience extending over more than twenty years that the distinction between a graduate and a non-graduate of a college is not broad enough to be made the basis of an educational policy, at least in the field of engineering. There are other differences between students that are far more important than this. Graduates and non-graduates mix together in the classes of our junior and senior years naturally and easily and with mutual advantage. Moreover, if the two schools do not differ radically in the character and experience of their students, neither do they differ radically in the methods of their instruction. There is a gradual and inevitable approximation in these matters between the two schools. The Institute has graduates of Harvard on its staff, and a considerable and increasing proportion of Harvard's faculty in its schools of engineering and mining has had experience in teaching at the Institute. It seems, then, that there can be no probability of maintaining the two schools in such a way that they can be essentially different and there are certainly great advantages in their combina-

tion. The most obvious advantage is the economic one. Engineering is a most costly branch of education, involving great expenditure in the equipment and maintenance of laboratories and of a large teaching staff. Every dollar needlessly expended in duplication is a mere waste and it is clear that we must conserve our resources if we are to keep in the front rank and withstand the competition from richly endowed state institutions scattered around the Union. It might be suggested that two schools in this community would be better than one in order that we may have the benefits of competition, but no one with his eyes open can fail to see that there will be plenty of competition in any case. It will always be necessary to keep alive and wide-awake to see that in some branch or another some other institution is not running ahead of us.

I have spoken of the economic advantage of combination, but this is not the only one. The center of gravity of the school is its faculty, and the school will be strong or weak as its faculty is strong or weak. A strong faculty must be made up of strong individuals and these are all too rare in the educational world. There are not enough of them to go around and in many cases Harvard can get a man of the first rank only by taking him from the Faculty of Technology or *vice versa*. It cannot be necessary to enlarge on the great advantages that would follow from a wiping out of the division in the community between those who are interested in Harvard and those who are interested in Technology. A community united in this matter would give enormous strength, and the power and prestige of a school that could open to the world the power and advantages of both institutions would be absolutely unique.

So much for general considerations. What of the actual plan? The fundamental point is that it is an alliance between independents and no merger. In the words of the Hon. Richard Olney, written in the course of a carefully considered legal opinion, "the plan spells coöperation and nothing more." There is no change in the constitution of either cor-

poration, each being as free as ever before to pursue such policies as it deems wise, and each being free to discontinue the alliance upon due notice to the other. Harvard agrees to give up all its work in engineering as an independent effort and in future to carry on that work in the buildings of the Institute on its new site under the executive control of the President of the Institute. The most important point of all is that the work of instruction and the laying down of all courses leading to degrees, whether they be degrees of the University or of the Institute, is entrusted to the Faculty of the Institute, although it is only with a very small fraction of that Faculty that the University has any power of appointment or removal. As it is the Faculty that maintains discipline, keeps up educational standards and shapes educational policies, this arrangement ensures that in all important matters the ideals of the Institute will be maintained.

It may be well, now, to take the agreement clause by clause and make such comments thereon as seem desirable.

The first clause scarcely requires comment. It preserves the Institute's name, organization and property rights.

The second clause limits the scope of the coöperation to certain branches of engineering—mechanical, electrical, civil and sanitary and mining,—these being the branches of engineering common to the two schools at present. It is important to notice that this clause also limits the field of coöperation by prescribing that all the courses and research are to be conducted in the Institute's buildings on its new site. The courses are conceived of as a whole, English and mathematics being as much a portion of a course in civil engineering as is the theory of structures.

The third section indicates the extent of the University's financial contributions to the coöperative effort. The main source of these contributions at present is the Gordon McKay endowment. The portion of this, namely three-fifths of the whole income, that is to be set aside for the work of engineering, amounts today to about \$50,000 and for the next thirty

years will increase at the rate of about \$5,400 annually.

Section 4 deals with the Institute's financial contributions. At present it has no funds of any appreciable magnitude that are ear-marked for the branches of engineering named, but, of course, it may get such funds in the future.

The portion of Section 5 that deals with the division of student fees is necessary in order that there may be no uncertainty as to the financial contributions that each party makes from year to year. All students' fees are to be devoted to the work that is carried on within the Institute, but in the keeping of books a certain proportion of these is to be credited to the University's contribution for the maintenance of the work. The division agreed upon means that about one-twentieth of the fees of students pursuing courses in these branches of engineering would be credited in this way to the University. The latter portion of the clause raises all fees to the Institute's present standard.

Section 6 indicates how the money referred to in the three preceding sections is to be expended, and requires, as the law demands, that each corporation should approve the appropriations of the money that each supplies, and that the money supplied by the University shall not be used for the erection of buildings on land that does not belong to the University.

Section 7 requires the approval by the Corporation of appointments and removals of those members of the instructing staff whose salaries are paid in whole or in part by that Corporation and further requires consultation between the two corporations before final action is taken. It is important to bear in mind, however, that although in law it is the Corporation that appoints, in practice the initiative for such appointments does not come from the Corporation. Suggestions for appointments come from the Faculty and are made by the Corporation on the recommendation of the President. In this case, the President of the Institute and not the President of Harvard, is the executive head, so that all appointments will be made on the recommendation of the President of the Institute.

Section 8 gives to certain students at the Institute certain privileges at the University. In order to satisfy the implied conditions of certain trusts as well as on broader grounds of policy it seems desirable to give to students who are prospective candidates for the University's degrees in engineering the same rights and privileges as students in the *professional schools* of the University. It should be noticed that these students are not registered as students at the University, although their privileges are the same as if they had registered in the professional schools. The distinction between privileges of students in a professional school and of students in the college is, from certain points of view, important. It excludes these students at the Institute from participation in the athletic activities of the University and from many of its social activities. It does, however, give these students the right of using the libraries and museums of the University, its Stillman infirmary on payment of a fee, and it enables them to attend certain lectures in the University on subjects outside their professional courses without payment of fee. These privileges would probably be little used by the great mass of the student body, although they would be of great advantage if used, particularly to candidates for higher degrees.

Section 9 makes the President of the Institute the executive head for all the work that is carried on under the agreement. This, of course, is of great importance owing to the power of the President in shaping the policies that are to be pursued. It would be practically impossible under such an arrangement for anything important to be done that did not meet with the approval of the President of the Institute. The sentence in this clause which gives the President of the University some voice in the selection of a President of the Institute is almost sure to be attacked, but sober thought will show that it is not only harmless, but eminently proper. It should be noticed carefully what the position really is. The President of Harvard is invited merely to sit with the committee that recommends the appointment of a Presi-

dent to the Corporation of the Institute. He has no power of voting with the committee. He has merely an opportunity of expressing his opinions and of learning what is going on. The committee on selection is not in any way bound to follow his advice even if he tender it and is not likely to be composed of men who would fail to weigh advice on its merits irrespective of its origin. Further than that, the Corporation of the Institute is entirely free to act on the recommendation of its committee as it deems wise. What solid objection can there be to such an arrangement? It may be suggested that it is not mutual and that to make it so, the President of the Institute should have a similar voice in the selection of a President of the University. This, however, would be to misunderstand the real significance of the agreement. By this agreement, Harvard entrusts a great deal to the Institute. Practically it commits to it its money, its faculty, and the shaping of its educational policies as far as engineering is concerned. The Institute commits nothing to Harvard, and, as far as this agreement is concerned, has no interest in the work of Harvard outside the field of engineering. Under the circumstances, it would be improper for the University not to know something of what is going on when a president of the Institute is being selected. Apart from this consideration, however, it must be clear that it is the path of wisdom to give the President of Harvard the opportunity of knowing *officially* who are being thought of as possible candidates for the presidency of the Institute. Unofficially, he would be consulted in the matter anyway, whether there were any statement with regard to that in the agreement or not. The President of Harvard is consulted about practically every presidency in the country, and it would be extraordinary if he were not consulted about the presidency of the Institute when it is within a few minutes of Harvard square and is so closely allied to the University in interest as will be the case under this agreement. By consulting him officially, the Institute's Corporation does wisely. It gives him an opportunity of expressing his