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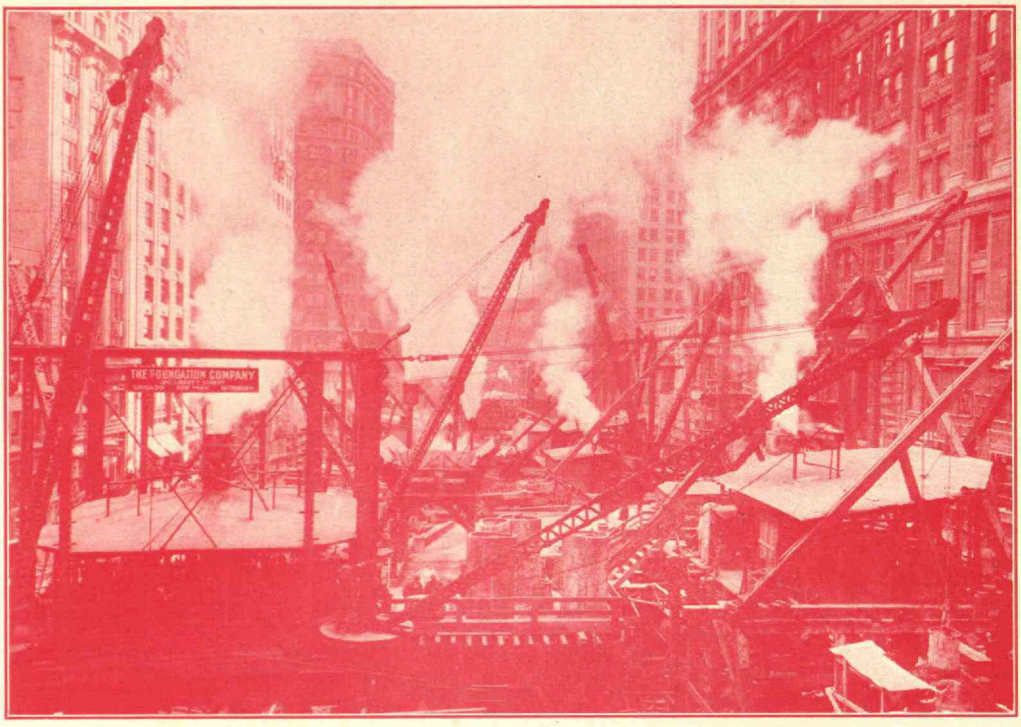

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THE
TECHNOLOGY REVIEW
RELATING TO THE
MASSACHVSETTS·INSTITVTE·OF·TECHNOLOGY

H. E. LOBDELL, EDITOR | E. F. HODGINS, MANAGING EDITOR | R. E. ROGERS, CONTRIBUTING EDITOR

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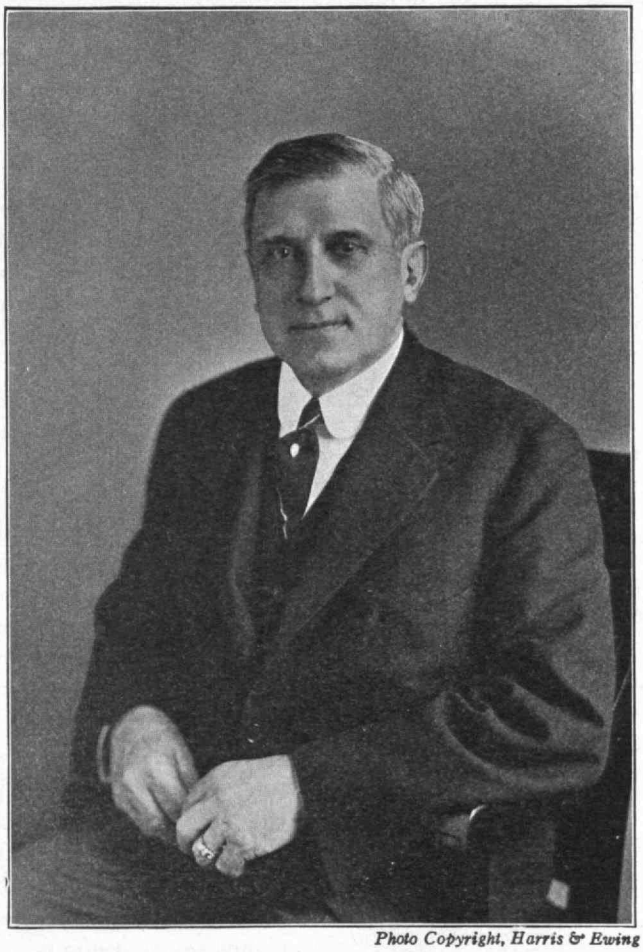
The Past Month

SIGNIFICANT news comes from New York. On December 15 and 16, the New York Technology Club will act as host to the Technology Club Associated and to the Alumni Association at a convention to be held for the purpose of welcoming Dr. Stratton to Technology. Dr. Stratton's first contact with the Faculty has already occurred: this will be his first meeting with the Alumni of the Institution he is to head.

After the reception which opens the convention on Friday at three p.m., the program is a varied one. There will be smokers, inspections of industrial plants, class luncheons. On Saturday evening, there will be a joint dinner of the Technology Clubs Associated, the Alumni Association and the New York Technology Club. Altogether, it seems a wisely planned event and one to look forward to.



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CHARLES M. SCHWAB
Speaker at a Technology Convocation held at Walker Memorial on October 17

ON October 17, Mr. Charles M. Schwab spoke to Technology in Walker Memorial, at the first Convocation held since the address of Dr. Takuma Dan, '78, almost exactly a year ago. It would be futile of the Review to attempt to dissemble the emotion it feels at the coming of Mr. Schwab. It is, in fact, forced to confess that on thought of the occurrence a warm glow of pride suffuses it. There are those who may remember that bigger and better speeches have been a plank in the Review's platform for a long time — for one calendar year, in fact. It was in December, 1921, that the now famous editorial "Foch—and a Moral" appeared in the pages of the Review. This editorial's first anniversary, then, is celebrated in a fitting manner. Mr. Schwab's address was heard by an audience whose size left no room to spare in the auditorium, and upon whose ear the speaker's vigorous phrases fell in a manner that seemed to give much satisfaction. Dean Talbot as chairman of the administrative committee, introduced Mr. Schwab to Technology.

DR. Stratton's first contact with the faculty of the new institution he is to govern, came on the fourth of November. It was on this day that the Corporation and Faculty met their new president, at a reception held at the home of Mr. Everett Morss. This particular Saturday furnished a day full of new contacts for Dr. Stratton. Most of the morning he spent granting interviews to the score of newspaper men who besieged him for

information concerning the new career he is to make for himself. At noon, he attended a luncheon with the Executive Committee of the Corporation. The reception came at four o'clock in the afternoon, at which Dr. Stratton shook some four hundred hands and gazed for the first time into some four hundred pairs of eyes. A private dinner followed in the evening. It is supposed that Dr. Stratton's first meeting with the students will not occur until sometime after his inauguration, for which, as yet, no definite date has been set.

THE coming of a new President has a way of coloring Technology's entire existence these days. Certainly it does much to dispel the depression which has existed in some quarters over the resignation, in the past two years, of so many able men from the Institute staff. But we have a new President and although his coming naturally overshadows everything else, we may still remember that we have some other acquisitions as well. Although a roll call reveals the absence of a number of well-remembered voices, it likewise gives us the opportunity of hearing some that are new this year and likewise of hearing some that have been temporarily silent. Hutchinson comes to us on January 1, to be Professor of Mining; Waterhouse comes to be the new Professor of Metallurgy; Kennelly returns laden with foreign honors, as does Lipka — this latter return making possible the resumption of the famous slide rule lectures, the only lectures whose absence from the curriculum has ever drawn forth editorial protest in *The Tech*. The acquisition, or the return, of these men will certainly do much to lighten the gloom caused by some previous resignations. As a matter of fact, this gloom is almost inevitably postulated by the character of the men whose names are written upon our faculty rolls. We do not have the kind of men it does not hurt to lose.

NOVEMBER saw the first action taken on the continuance of the prize contest which will some day furnish Technology with a new Alma Mater song. The Committee has announced that all entries in this competition are due on the 15th of February.

Unlike most of the Institute's contests, this one is open both to undergraduates and alumni. The purpose of the competition, which extends over a total of four years, is to find a song whose words and music can be used in place of the famous "Stein Song," — not because of any disregard into which the latter has fallen, but because the "Stein Song" is not specific enough in its connection with Technology. The first lap in the competition has already been run. Last year, Arthur E. Hatch, '91, won the $200 prize for the best words and music submitted. A similar prize will be awarded in 1923, 1924 and 1925. At the end of these four years, the new song will be picked from among the four preliminary prize winners.

As usual, complete anonymity is to prevail. Manuscripts are to be submitted under number only, to the Secretary of the Institute Committee. Accompanying the manuscripts, contestants will submit a sealed envelope, bearing upon its face the same number, and enclosing the contestant's name. These envelopes will be opened and read only after the winning song has been determined.

OF late, Technology's Cross Country Team has been making history. Within one week it defeated Jack Moakley's famous runners of Cornell and defeated both Dartmouth and Harvard in a triangular meet. These victories were impressive. The victory from Cornell was narrowly won, by a score of 51 to 55, but when anyone defeats Cornell in a cross-country meet, he has every reason to congratulate himself. There was no uncertainty about the victory over Dartmouth and Harvard, and the showing of the team in this meet evoked the hope that when Captain Hendrie's team journeyed to Princeton, it would return victorious. This hope was not fulfilled, although Hendrie himself placed first. But the Institute, insistent upon sport for the sake of sport and not sport for the sake of winning, has every reason for elation at the splendid showing both of form and of sportsmanship which its Cross Country Team has made so evident this year.

REPORTS of a reasonable finality from the Registrar's Office indicate that for the first term there are 3177 students pursuing the various graduate and undergraduate courses of the Institute.

The analysis of these figures, however, has not been published in all finality. One interesting fact is already in evidence, however, and this is that a dead heat is being run this term between Courses II and XV.

For a number of years now, Course II has held a safe supremacy as the leader in numerical registration. Course XV has been making steady strides to the front ever since its inception and now it has all but arrived at its objective. Figures show that Course II and Course XV have at present a registration each of 486 students. In reality, this balance held true for no more than a day. Students enter, change their registration, or drop out with much frequency during the early weeks of the term, but the parity between the figures is none the less interesting. The Electrical Engineering course follows the deadlocked two with 436 students and Chemical Engineering has 408. From here on, courses distribute themselves indiscriminately. The smallest course this year is Sanitary Engineering, which in all four years claims seven students.

AS the Review goes to press, there comes the news that the first meeting of the Alumni Council will occur this year on November 27. Since the New York Technology club's elsewhere-recorded plan will serve to introduce the Alumni to Dr. Stratton, it is not expected that he will attend the council meeting.

The New Tech Navy

An account of the recent rise to prominence of the Technology crews*

By ALLAN W. ROWE '01

Secretary-Treasurer, Advisory Council on Athletics

One of the oldest of our modern sports, one with an appeal not limited to any race or country, one that can be followed in youth and in age, is the general sport of rowing. In this, however, as in all exercises calling for endurance, strength and judgment, the aspect of competition, ever a potent factor, has become that of dominance in these later days. With the wholesome trend of the time our educational institutions have come to recognize that the conservation and development of various forms of sport are as essential a part of the educational program as those studies more strictly academic in character. With the organizations and the facilities available in most universities and colleges it is perhaps not too much to say that athletics, in the broadest sense, find in them their most important focus. Rowing, however, has failed of receiving the broad recognition accorded to many of the other forms of exercise.

Photograph by Notman Studio

ALLAN WINTER ROWE '01

The competitive element of our American college has grown to undue proportions and sport for the sake of sport has been subordinated to sport for the sake of winning. Rowing is peculiarly susceptible to this untoward influence since, theoretically at least, the development of winning crews is an affair of great financial outlay without any compensatory financial return. While most of our college sports, exclusive of football, probably baseball, and possibly track, operate at some financial loss, the total of the deficit in any of the other activities falls far short of that entailed by college rowing as at present conducted. It is the more regrettable that these disabilities exist, for rowing is a clean, fine and most wholesome form of exercise, free from the possibility of physical injury if conducted moderately, and is one of the games in which men of maturer years may participate with continued pleasure and benefit. If some means, then, could be found to operate college rowing at a not prohibitive expense, the enterprise would seem wholly desirable. In consequence, the "Technology Experiment" is of more than local interest.

In the athletic world the Massachusetts Institute of Technology occupies a somewhat peculiar and individual position. In the first place, it is a professional school, the straitness of whose academic standards is universally recognized. The amount of time which the average student can devote to recreational exercise at Technology falls materially short of that available to the student in the average college. This exact circumscription of time together with the individuality of the scheduling of classes and overcrowded laboratories due to the necessity for economically operating expensive equipment eliminates both football and baseball as potential fields of intercollegiate competition and revenue. A football team which can start its practice only after dusk and must then bring it to an abrupt close in order that the evening work may be accomplished, falls short of a desirable form of exercise for the average man. Similarly, a baseball team which, to round out its season, would have to operate for a full month after academic exercises come to an end, can hardly be regarded as conforming to the best standards of college sport. Recognizing these limitations which, on the one hand, preclude the development of teams which might be sources of definite financial profit to the athletic association and, on the other, make the prosecution of sport a matter of rather more difficulty than is experienced in most institutions, the authorities at Technology see in the latter of these two handicaps the most insistent reason for the prosecution of sports so far as is possible. Men confined to the laboratories and classrooms from nine in the morning until five at night need both the physical stimulus and the mental change of some form of exercise if the balance is to be held true. Further, this is essential for the entire student body rather than for the selected few individuals who through natural or acquired advantages are capable of a high degree of competitive athletic development.

In part, then, determined by existing conditions and equally in part by the recognition of the desirability of complementing mental activity with physical, the whole trend of athletic development at the Institute of Technology has been to interest the student body as a whole, to cultivate general athletics and to conserve

* This article is a revised form of one entitled "The Technology Experiment," which appeared in a recent number of *Intercollegiate Athletics*. It is reprinted here in its altered form by permission of the author.

the competitive element only as a normal stimulus to healthy, right-minded young Americans.

The desirability of rowing as a sport which could conform to these criteria was early recognized by the Advisory Council on Athletics, a body composed of alumni and undergraduates purely advisory in its nature. The extreme limitation, however, imposed upon athletic activities by most rigid circumscription of funds made any general plan an impossibility for the moment, although it has been ever a goal to be striven for conscientiously.

Some fifteen years ago owing to the presence in the student body of several young men who had had rowing experience in other colleges, a modest Alumni subscription was made, a shell purchased and for two or three years more or less successful competitive rowing carried on by a small group of interested athletes supported by a few Alumni. With the graduation of the undergraduate contingent, interest flagged, but in a few years a recrudescence took place which in a comparatively short time invoked the interest of an appreciable number of the student body.

Aided initially by a few interested Alumni, but enduringly (and most helpfully) by the Harvard Athletic Association, the Boston Athletic Association, and yet more recently by the Union Boat Club of Boston, crews of Technology men began to function on the river. Competition of a limited sort was even carried on. It is, perhaps, not too much to say at this point, that the real development of rowing at Technology is in large measure dependent upon the thoroughly sportsmanlike, whole-souled co-operation shown by the above-mentioned athletic bodies. Although at no time was more than one thousand dollars a year available for all of the expenses incident to the crews, and in many years the sum was not more than two-thirds of the above, competitive rowing has been followed out to a steadily increasing extent — some fifteen races during the year 1920–1921 and an even larger number in the year just closed. What is far more important, in the training of squads for these competitive crews, general rowing has been steadily developed.

Recognizing the desirability of the sport as a sport and the grave difficulties with which it was being carried on, the Corporation of the Massachusetts Institute of Technology some months ago most generously purchased the boathouse formerly the property of the Boston Athletic Association and appropriated a sum of money to remodel the house in conformity with the needs of the Technology student body. The Metropolitan Commission with a most friendly spirit of co-operation has granted to the Technology authorities a long term lease not only of the land on which the boat club stands but of a two hundred foot frontage on the river, thus allowing for an expansion in the physical equipment which is inevitable. With this sound and essential basis it is now purposed to carry out a plan for general rowing at Technology which shall harmonize with the various policies already established for the conduct of student activities and which shall exemplify in largest measure the basic principle of all the student interests at the Institute, namely, that a sport is successful only in proportion to the number of men that it attracts, wholly independent of the number of victories won.

At Technology, the conduct of student affairs rests in the hands of the student body. The Alumni concern themselves so far that they elect various advisory councils which co-operate with the student governing bodies in the several branches of student activity but function implicitly as their name implies. The Faculty at the Institute, as such, exercises no jurisdiction over student activities. The Corporation as the body in whom all control is ultimately vested delegates its authority to the Alumni Association and to the student body direct. There are, then, the several interests of the Corporation, of the Alumni Association, its Advisory Councils and of student governing bodies to correlate, leaving, however, the final conduct of the undergraduate affairs in undergraduate hands.

That rowing may be conducted, certain specialized equipment is essential and for its maintenance, care, and use, certain special provisions must be made. In the first place, the care of the boats and oars with the repairs incident to use have been placed in the hands of the caretaker of the building, himself an oarsman of experience and also a practical boat builder. As the plan progresses, it is hoped that with such assistance as may be necessary, the building of shells will become a part of the function of this department. At the present time, the student body owns a number of shells and wherries which have been purchased either from its funds or donated by friendly Alumni or those sister associations whose friendly co-operation has already been mentioned. With the purchase of the boathouse came a certain number of craft which had been the property of the B. A. A., but the main equipment is the property of the student body as such. That this equipment shall have the most extended use is of course the first object, but as such use entails losses through wear and accident, some provision must be made for the expense of upkeep. To this end, a small charge will be made for the use of boats to the individual students, comparable to the charge made to ensure the upkeep of tennis courts. Rentals for the housing of private boats, locker charges, and so forth, will all be turned in to the general fund to be used for maintenance, repair and replacement. Additional equipment must also be added and to this end the Alumni have been, and will be, asked to contribute. Already several generous contributions have been made, amounting to several thousand dollars and there is every reason to expect that the benevolent practice will continue.

When it is stated that there were over two hundred men in the initial rowing squad and that over one hundred of these were carried throughout the season last completed, it can readily be seen that the sport, although young, is extremely vigorous and a steadily increasing number of all types of boats must be added.

The general policy adopted throughout in the operation of undergraduate activities at Technology is to give to the undergraduates themselves the large measure of the conduct of their own affairs. To carry out this idea, a boathouse committee will be organized during the coming year with the past manager of the Crew — a senior — as its chairman. This committee will operate and govern the boathouse. It will be directly answerable to the Institute Committee, the representative student governing body in control of all student activities.

The Alumni Council will elect an Advisory Council for the boathouse similar to the other Advisory Councils now operating under it and with activities similar to those already constituted. This Advisory Council of Alumni will meet at stated intervals with the Boathouse Committee. This joint body will operate the boathouse, the older men in an advisory capacity, the younger as the source of administrative power. This

joint committee constitutes the liaison between the Alumni and the undergraduate committee. The prime purpose of this committee will be the promotion of general rowing at the Institute, offering every inducement to the undergraduates as a whole to make use of the boathouse and its equipment, and offering to the student body a new outlet for activity in a recognizedly clean and wholesome exercise.

The competitive rowing in its conduct will remain under the jurisdiction, on the one hand, of the manager of the crews who is the elected officer of the M. I. T. Athletic Association, and, on the other hand, the Advisory Council on Athletics. This separation is necessary as the competitive rowing forms one of the group of athletic activities intercollegiate in character and susceptible to and operating under groups of rules drawn up by the various intercollegiate governing bodies. Questions of elegibility and others of a similar nature fall within the province of the Athletic Council. In a word, the Advisory Council on the Boathouse will operate the intra-mural, and that on Athletics will continue to operate the extra-mural, phase of rowing. A common Secretary for both Councils will secure the liaison between them.

While the Corporation is responsible for the care and maintenance of the building and the various rentals and fees will provide for the maintenance of existing movable equipment, definite provision must be made for additional funds to be used in the purchase of new equipment of this type whereby the ever-increasing numbers of students may be provided for. One source of income has already been touched upon. For example, the Technology Club of New Hampshire, a short time ago voted the E. W. Rollins Fund for this purpose. Individual donors have also made most generous and welcome contributions as the recent gift by Mr. Henry Morss of the new coaching launch. To ensure, however, a steady source of income for this necessary purpose, the Technology Boat Club has been established. This is a club composed exclusively of Technology Alumni who make a yearly contribution in the form of dues for membership. The officers of the Club are ex-officio members of the Advisory Council on the Boathouse. The funds accruing from dues are to be expended solely for the purpose acquiring of new equipment.

From the standpoint of intercollegiate athletics, the question of competitive rowing is the vital one. As has been outlined in the preceding paragraphs, general rowing at Technology is the primary interest and object of those concerned with the conduct and development of the sport. At the same time, it is clearly recognized that the competitive factor is the strongest possible incentive, and to that end every effort will be made to develop competitive crews of a high grade. Certain peculiar conditions, however, attach to this aspect which may be of interest. Athletics at Technology at the present time are supported from a student tax or due of approximately nine dollars per capita. Of this, athletics have received in the past $2.50, but a recent action of the Corporation authorizing the student body to reapportion this tax and themselves assuming certain heavy financial obligations formerly met by it, will increase the athletic proportion to about five dollars per capita per year. During the last year, the money accruing from the direct athletic return was in the neighborhood of eight thousand dollars; gate guarantees, class apportionments and outside donations raising the total income to approximately fifteen thousand dollars. The increase in the student tax will make the total amount available from this source about equal to last year's budget, but certain of the sources of income available last year will cease to be effective, so that the total available income for the coming year is estimated to be approximately nineteen thousand dollars. On last year's budget, thirty-one teams were operated in various forms of sport. The same or a greater number will function during the coming year. Competitive rowing has been supported by the student body in the years gone by and the student body will be called upon to support it in the years to come. It can be readily seen from the above analysis that the amount of money available for rowing — one thousand dollars — cannot be increased. Where the sport is carried on with such limited financial support there must be a large measure of the most sportsmanlike assistance and co-operation in all possible directions. Technology crews, for example, in competing with those away from Boston, are loaned shells by their hosts. The crew men meet from their personal resources a considerable part of their traveling expenses. It is felt at Technology that this is wholly desirable, as it is typical of the best spirit of amateur sport and tends to engender in every young man who competes under these conditions, a wholesome attitude in regard to sport and a confirmation in essential amateurism.

The most outstanding feature, however, in the whole scheme for the competitive rowing rests upon the coaching of the crews. Some years ago the Institute was fortunate enough to enlist the interest of Mr. Arthur W. Stevens, a graduate of Harvard, and a keen follower of the sport of rowing. For a time, Mr. Stevens assisted the embryo Technology crews to their great advancement. Under the new system, Mr. Stevens has consented to take over the coaching of the competitive crews. It is expected that he will be assisted during the coming year by some of the Technology alumni and that in this way a purely amateur system of coaching will be developed.

The constant cry daily growing louder in volume against the commercialization of college athletics finds its best answer in the development of systems such as that outlined above.

The Tech Boat House — Just Below the Cottage Farm Bridge

The Hampden County Memorial Bridge

How the bridge connecting Springfield and West Springfield was designed and built largely by Tech Alumni

By CHARLES M. SPOFFORD '93*
Hayward Professor of Civil Engineering, M. I. T.

Seldom has the completion of a new bridge been marked by a two-day celebration such as accompanied the dedication on August 2–3 of the new reinforced concrete arch bridge across the Connecticut at Springfield. Boat races by day, a Venetian pageant by night, illumination of the bridge by colored lights, an historical parade, dancing on the streets and in the Municipal Auditorium, dedicatory exercises with numerous speakers, including the Governor of Massachusetts, elaborate fireworks, odes to the bridge by local poets, a special illustrated bridge edition of the famous Springfield *Republican* on the Sunday preceding the ceremonies with thirty-seven pages given up to descriptions of the new bridge, and of bridges in general, holiday crowds in the streets and on the bridge, all combined to show the importance attached by the public to the completion of this important new artery of commerce spanning a great New England river.

One of the Main Towers

In the design and supervision of construction for this new bridge, no less than fifty-seven Technology Alumni have been connected, in an engineering capacity. Others have served as principals and subordinates in several of the contracting firms which carried on the actual work of construction. Consequently, it is especially fitting that an account of the bridge should be recorded in Technology's official magazine.

The first bridge across the river at Springfield was a wooden Toll Bridge, built in 1805. This bridge was so weakened by floods that nine years after its completion, it gave way under a load of army supplies and was torn down. Another wooden bridge was built on the same site in 1816. Each of these bridges was financed by a lottery, a common device for raising funds for bridges since the days of the old London Bridge — a device apparently not disapproved by the clergy, since a sermon was preached and a prayer offered at the dedication of one of these bridges.

The second of these early wooden bridges lasted but two years, and was then partly carried away by a flood. This bridge was, however, restored in 1820 and had continued in practically continuous service since that date, although requiring extensive and frequent repairs and strengthening. In 1918, however, its condition became so bad that it was closed to vehicular traffic; three additional piers were built, the three longest spans were replaced by new timber spans, and the trusses of the shorter spans and the entire floor were strengthened.

Before this last extensive reconstruction, the old bridge, after a century of use, had become a curious looking structure. It was warped sideways and had settled vertically so that it was difficult to see from one end to the other through its tunnel-like and serpentine roadway. It swayed under passing loads to an alarming extent and arrival at the other end marked a feeling of relief in the minds of those not hardened by regular use of it.

In addition to being unsafe, the old bridge, built when Springfield and West Springfield had a combined population of only a few thousand instead of the 150,000 now dwelling in these cities, had become entirely inadequate for the volume of traffic and would have been replaced long ago had it not been for disputes as to the proper location for the new bridge.

Finally, the bridge situation became so acute that the unusual expedient was adopted of obtaining authority by an act of the Massachusetts Legislature for the appointment, by the Supreme Court of Massachusetts, of a Board of Commissioners, none of whom should be a resident of the County, to determine the location for a new bridge, make the necessary plans and estimates of cost, and apportion the expense of the project between the County and the various municipalities especially benefited. This commission, consisting of the Honorable John L. Bates, Chairman; Honorable Joseph H. O'Neill and Joseph R. Worcester, Esq., all of Boston or vicinity, was appointed on September, 1915, and after four years of public hearings, engineering and other investigations, made its final report to the Supreme Court, this report being accompanied by an unusually complete set of plans and specifications for the bridge and its approaches. The report was soon confirmed by the Court and, after discussions and investigations extending over a score of years, the way was finally cleared for the start of construction.

This long period preliminary to the beginning of construction forms an excellent illustration of the difficulties which often develop in connection with a public project as well as of the importance of a great bridge to the community which it serves.

According to the legislative act authorizing the bridge, the County Commissioners of Hampden County were, upon the approval by the Court of the Bridge Commission's Report, required to proceed forthwith with the construction. The Commissioners promptly took steps to prepare the necessary documents for competitive bidding, and on March 10, 1920, opened bids from various contractors for the construction of the bridge proper, the approaches and miscellaneous work being left for later contracts. The contract was awarded on April 3, 1920 to the lowest bidders — H. P. Converse & Company of Boston, a copartner-

*Besides his connection with Technology, Professor Spofford is a member of the consulting firm of Fay, Spofford & Thorndike, designing and supervising engineers of the bridge, largely composed of Technology men. Frederic H. Fay is a member of the class of '93 and was president of the alumni association in 1913. Sturgis H. Thorndike is a member of the class of '95.