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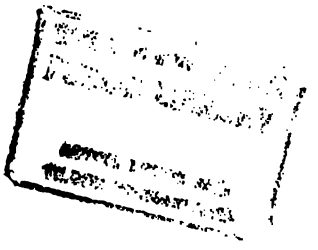
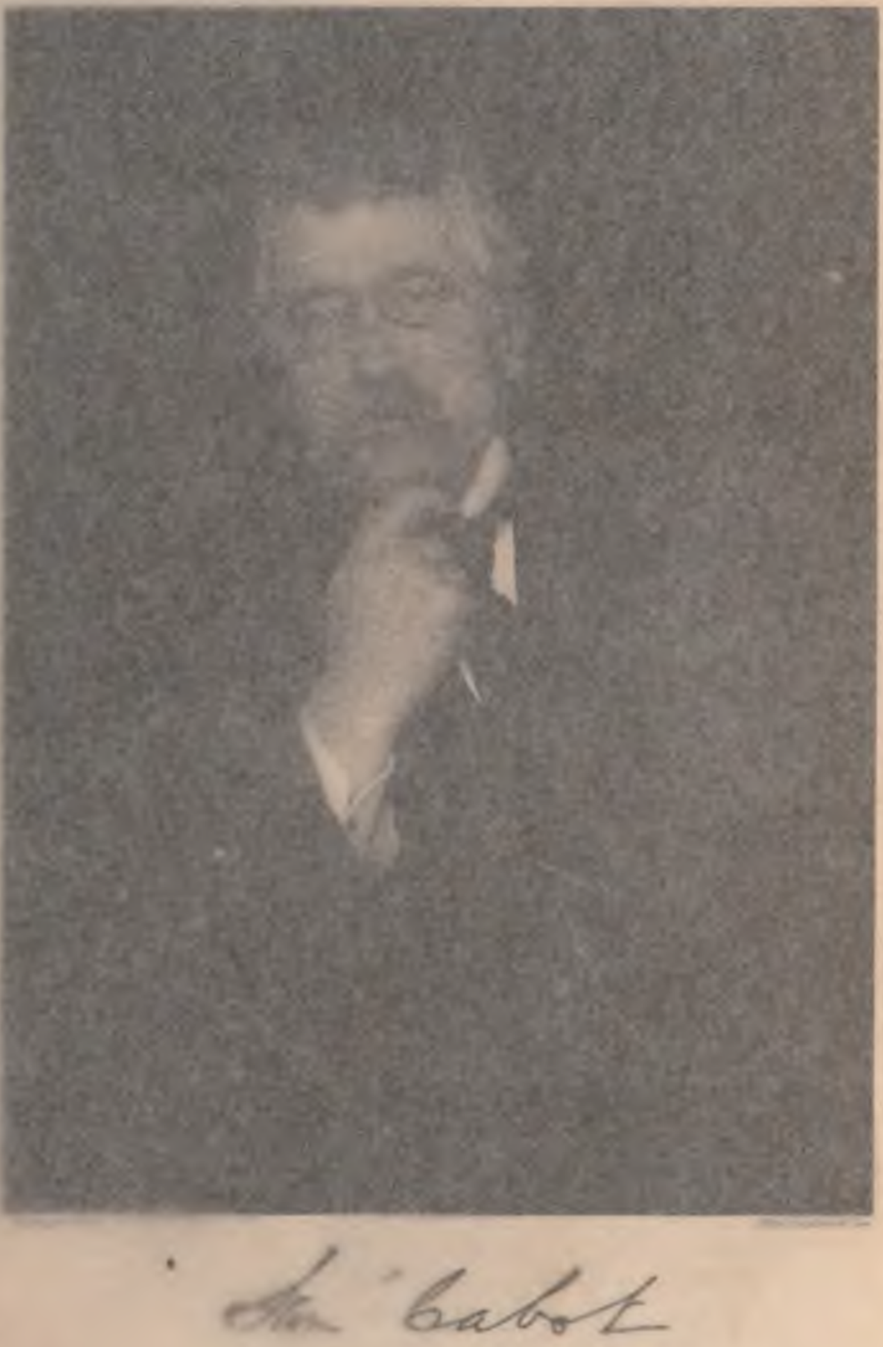


Sam'l Cabot



The Technology Review

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SAMUEL CABOT
IN HIS RELATIONS TO THE INSTITUTE

Student of the Institute, 1866–70.
Elected member of the Corporation of the Institute, 1889.
Chairman of the Committee on the Departments of Chemistry and Chemical Engineering, 1892–1906.
Founder of the prizes for physical culture in 1905.
Died November, 1906.

Others, who knew Samuel Cabot longer than I, have spoken of his integrity and his high-mindedness in business relations and in social life. I came to know him and to love him out of his relation to the Institute,—a relation which had to do with its Corporation, with its Faculty, and with its students; and I venture to speak briefly of that part of his busy life and work.

I came to the Institute six years ago; and amongst the first men whom I grew to know intimately was Samuel Cabot, or—as we loved to call him—Sam Cabot. My intimacy with him came about because, as a student of the Institute and as a member of its Corporation, he had a hearty interest in all for which it stood and in all which it undertook to do. Any man who came as the President of the Institute was sure to come very quickly in contact

with a man whose interest and whose service to the Institute was so direct and so constant.

As Chairman of the Committee on the Departments of Chemistry and Chemical Engineering, he made of the committee an active agency for stimulating and helping the work of the Department. Visiting the Departments often, knowing personally the instructors, bringing them together at his house year by year, he knew the Department as few members of the Corporation know the Departments which they visit from year to year. It was this intelligent, faithful, devoted service which first drew me to him.

It was, however, I think, his interest in the student problem, in the human side of the relations of the Institute, which most attracted me. His sympathy for the man who lived in a small room, cut off from social intercourse, living on limited means, working intensely to finish his course, was so keen and so genuine that I felt the greatest encouragement in talking over with him plans for the betterment of student conditions. Into all these plans he entered most intelligently and most heartily, giving not only of his means, but of his strength and of his time and of his service. He was one of those whom Lowell describes as giving himself with his gift.

One of the immediate results of this interest was the gift to the Institute of his share of what is known as Cabot Field, the athletic field in Brookline which serves the purposes of exercise and of sport in our student life. This gift was a generous one in money, but it was still more generous in the attention and the care which he gave to it. But it had its greatest value from the ideal of sport and of play which he held up always before our students and our alumni, and which is voiced in the verse written by

F. Gelett Burgess ('87), and placed, at Mr. Cabot's suggestion, above the gate given last year by the class of 1881,—

Not the quarry, but the chase,
Not the laurel, but the race,
Not the hazard, but the play,
Make me, Lord, enjoy alway!

Through this genuine interest in the human problem which stands before the Institute, as it stands before all institutions of learning, Mr. Cabot was led into increasingly close associations with the students in their organizations and gatherings. I well remember the first time he went with me to an evening gathering and his half-humorous embarrassment at being called upon for a speech. I remember, with equal pleasure, as he went more and more frequently to such gatherings, how this shyness wore off, and he came to enjoy the chance to say a word, always brief and to the point, concerning the problems which confront the student in the day-by-day work. Any one who knows young men knows that this kind of thing can be done only by him who loves it, and who feels that real love for men which enables him to come into a relation with them. There are few men whom it has been my good fortune to know who shared in such measure as Samuel Cabot that true comradeship with young men which enabled him quickly to put himself in relation with them. They came to know him and to love him, as we in the administration had come to do; and, when the student body asked the privilege of coming to the last ceremony held over his body, the request was one which came out of a real affection for him.

I like to remember that the last talk I had with him had to do with another project for ministering in a help-

ful way to student needs,—a project which came entirely from his own initiative and from his direct interest in the work and the life of Technology.

As I look back over the six years of my intimacy with this friend, I realize that I have known few men whose lives show as beautifully as his showed that forgetfulness of self which blossoms into true service of men. Marcus Aurelius had a saying that there are three kinds of friends: one who does you a service and straightway charges it against you, that he may receive a return for it; a second friend, who does you a service, and who, while he does not charge it against you, nevertheless never forgets that he has done you a service; and, third, a friend who does you a service, and straightway goes ahead to do you another service, just as a vine having borne fruit goes on to bear other fruit. Samuel Cabot was one of the friends whom I have known who belonged to this third class; and in no other relation of his life has he shown this quality of friendship more effectively than in those relations which he had with the Institute of Technology,—relations which began as a student in 1866, and ended forty years later in the midst of a generous plan for helping other students.

HENRY S. PRITCHETT.

TALK TO FIRST-YEAR STUDENTS

December 5, 1906

BY PROF. ARTHUR A. NOYES, CHAIRMAN OF THE FACULTY

At the request of the Dean, I am going to say a few words to you on behalf of the Faculty in regard to the importance of the so-called general studies in the courses of the Institute. And, in doing this, I shall try to impress upon you the importance of utilizing, as far as possible, not only these, but all other opportunities offered to you of developing yourselves upon other sides than the strictly professional one. It is a matter of extreme moment that you should acquire at the outset of your work here a true conception of the goal for which you are to strive and a correct understanding of the means by which it may be attained. You are not to become skilled artisans who have acquired only the technical methods of the industrial arts. If that be the aim of any one here, he should understand that his place is in a trade school, not in the Massachusetts Institute of Technology. You are to become the leaders on the scientific side in the development of the industries of this country. You are to become engineers, architects, or chemists in the highest sense,—not machinists, electricians, draughtsmen, or analysts. It is true that you must acquire the technique of your professions. The engineer must measure accurately, the architect must draw neatly and intelligibly, and the chemist must analyze with unerring certainty; yet these are incidental accomplishments, not the main qualities which you must acquire if you are to become leaders in your professions. A great difficulty in technological education arises from the

fact that so much time has to be devoted to the acquirement of technical methods and technical knowledge that the student is apt to come to regard this as the main purpose of his education. He does not see the woods because of the trees. First of all, then, you must resolve that you will be engineers, not artisans; leaders, not followers; originators, not executors; broad-minded men, not mere specialists. And you must adopt this resolution because, from a still broader point of view, it is your purpose to contribute to the progress of the world in as high a degree as your abilities and opportunities permit. It must be your aim to fulfil the function expressed in the closing words of the Institute poem recently written by one of our instructors:—

> "Each man in his chosen place
> Beats out on the anvil of human toil
> The good of the human race."

But, while it is fundamentally important that you keep before you this ideal, this is, of course, not alone sufficient. You must avail yourself of such opportunities as will lead to its realization; and it is of some of these, connected with your work at the Institute, that I want to speak.

I may first refer to the importance of approaching the so-called general studies—the courses in English composition, literature, history, politics, and in language—in such a spirit as will enable you to get the most out of them.

Remember, you are to be practical men of the world,—not workers in shops or laboratories, or even scholars closeted in their studies, like the monks of the Middle Ages,—and that you must acquire that breadth of view and breadth of knowledge which will enable you to be appreciated by those who have had a different training, and which will also

enable you to form a better estimate of the relative importance of the things of life, and to avoid the risk of getting the mental attitude of the trombone player who extolled one of the great operas of Wagner because it offered a fine opportunity for playing the trombone! You must be able, moreover, to write and speak well, if you are to make the results of your work effective, and are to secure adoption of your plans and ideas; but this is a power which is acquired only by much practice and by thorough familiarity with the best literature. Then you must be acquainted with those matters which form common subjects of conversation among educated people,—with the recent progress in literature, art, and general science, and with the political, social, and industrial questions of the day, which can be properly understood only through a knowledge of their recent history. It is the purpose of the general studies of the first three years and of the summer reading required between the first and second and second and third years to provide for this side of your education in as large measure as the time available will permit; and I urge you, on behalf of the Faculty, to regard these subjects as no less important than your strictly professional work, and to do your best to get out of them the broadening element which, when properly appreciated, they are sure to give. Even if from your present outlook these studies should not seem to you so well worth while, will you not accept in this the judgment of your professors, who, having devoted themselves primarily to science and engineering, would scarcely have a natural bias in favor of humanistic studies?

Another point with reference to your studies which should be emphasized is the importance of doing thorough work in the mathematics, physics, chemistry, and descriptive geometry courses of the first and second years; for

upon these sciences as a foundation the whole superstructure of the engineering professions rests, and unless your own foundation is a solid one, your structures can be only two or three story affairs. Without this you might later acquire the technical details of your profession; but you would be only rule-of-thumb engineers, who could imitate, but not initiate. Bear in mind, too, that even in your strictly professional work it is a knowledge of principles, not of the more concrete special methods, that is of most importance, and realize that any subject which has the title "theoretical" or "theory" attached to it is especially likely to be of practical value; for in science the term "theory" is not used, as in every-day language, in contrast with practice, but to indicate that the subject deals with principles rather than with specific facts. Special industrial applications and technical methods you will have no difficulty in grasping as soon as you enter the practice of your professions, provided you have acquired at the Institute the more fundamental knowledge of principles, and the power to apply it.

"Power to apply your knowledge,"—these words suggest that there is something more important than knowledge itself, even than of principles; namely, the acquirement of the power to make practical use of such knowledge as you possess. The question that will be asked in regard to each of you by your instructors and by the Faculty as you go on in your courses at the Institute, will be more and more, not, *What do you know?* but *What can you do?* It is this same question which a little later your employers will ask; and by the answer to it your success will be largely determined. How are you to acquire this power? Cramming subjects for examinations will not give it to you, for this, necessarily, consists in mere memorizing; and even the faithful learning of your daily lessons in school-boy fashion will not develop

it. You must not simply learn, you must *think;* so that you may fully understand and appreciate what you are learning. This takes more time and effort; but it is better, if necessary, to do only half the work understandingly than to learn the whole of it by rote. And you need have no fear but that the man who pursues the former method will far out-distance the one who follows the latter, both at the Institute and in his subsequent professional career. Especially would I mention the importance of thorough and independent work in the solution of problems, which form so large a feature of many of our Institute courses; for these form the very best means of developing mental power. To learn how to do problems from a teacher or fellow-student is to defeat their main purpose, which is to develop the power of solving any new problem,—not to teach how to do the special one in question.

I cannot close my remarks without adding that there are important duties to yourselves outside of the regular work within the Institute which must not be neglected. First of all, even though you may now have, in the prime of youth, "health that mocks the doctor's rules," yet it is one of the greatest mistakes that a young man can make to disregard the conditions essential to the maintenance of his health. I do not now refer especially to the avoidance of the common vices, for we all know that they are to be avoided; but I have rather in mind the more or less passive neglect to observe the ordinary rules of health,—to take meals regularly, to eat and sleep enough, and to take enough exercise and recreation. The student who neglects these things for the sake of his studies is misguided in his sense of duty, and the student who neglects them for the sake of his pleasures is guilty of a piece of folly not mitigated by any moral considerations. Both must pay for the neglect by future, if not by im-

mediate, impairment of their health, and, therefore, of their efficiency and capacity for enjoyment. The taking of exercise should be considered as much a matter of duty as eating or sleeping. I have long hoped that the students of the Institute might be the pioneers in the establishment of a rational system of athletics, one which would not merely draw into it the few already possessing high physical development, but one which would provide exercise appropriate to their strength for those who are least capable of competing, and who are on that account especially likely to neglect it.

Finally, I will refer briefly to the importance of cultivating social relations, especially among yourselves. There is no faculty of more value to the engineer than that of dealing easily and effectively with men, and it is one in which Institute graduates, at the outset at least, are often accused of being deficient. Work together, play together, eat together, exercise together, form societies together, especially for such purposes as increase your information and interest in non-professional matters,—only *don't loaf* together. The Institute life is, and ought to be, a strenuous one in the sense meant by President Roosevelt,—in the sense that no time is to be wasted in idleness or in unstimulating amusements, not at all in the sense that life here is to be all work and no play. Active pleasures are, I believe, a more potent factor than exercise itself in promoting both the mental and bodily health, which, as expressed by the motto of the Institute, *Mens sana in corpore sano*, must go hand in hand. Such pleasures are an almost necessary part of the activities that lead to ultimate success; but mental apathy and physical inertness have no place in the life of young men who aspire to become leaders in their professions. Follow the advice of Oliver Wendell Holmes:

"Shun such as lounge through afternoons and eves,
And on your dials write, Beware of thieves."

And do not forget the truth expressed by Longfellow, that

"The heights by great men reached and kept
Were not attained by sudden flight,
But they, while their companions slept,
Were toiling upward in the night."

ENGINEERING EDUCATION*

AN INFORMAL DISCUSSION AT THE ANNUAL CONVENTION OF THE AMERICAN SOCIETY OF CIVIL ENGINEERS, JUNE 27, 1906

Subjects for Discussion: "What is the Best Preparatory Education for the Civil Engineering Profession?" "Is Technical Training the Best Education for Executive Work?"

GEORGE F. SWAIN, M. AM. SOC. C. E. (by letter).—Most people will admit to-day that civil engineering, like other branches of engineering, belongs to the learned professions, and should require a preliminary technical training corresponding generally to that necessary for the lawyer or the physician. There is much to be said for the old apprentice system of becoming an engineer, or for the method by which a young man enters an engineer's office after an ordinary public school education, and slowly works his way along, studying, as he learns, by doing, the practical details of the profession. Engineering is more—much more—common sense and "gumption" than it is science, and the school cannot make up for a lack of these qualities. Many of our best and most deservedly eminent engineers are men who, by force of character and perseverance, have worked themselves up in this way. Yet these men would probably be the first to acknowledge the great advantage which a proper technical education would have been to them, and they would not consider for a moment bringing up their sons in the way which they followed. Yet it is probable that they fail to realize the benefits which they derived from the stern discipline of actual life and from the necessity which they were under of making up for lack of opportunity by hard work and diligent application. The trouble with the young man, between the ages of sixteen and twenty-two, who is given the opportunity of a higher education, is that he fails to realize his opportunity, and does not take advantage of it; and, as a result, many of the graduates of technical schools and colleges have neither accurate knowledge of any one subject nor the ability to think clearly and

* Discussion from Proceedings Am. Soc. C. E., vol. xxxii. p. 517.

logically, nor the power of taking up a new subject and mastering its fundamental principles without assistance.

"I would set all the young men to work," said Socrates, "and send all the old men to school." And this, while of course impracticable, involves a deep and fundamental truth: namely, that we learn mostly by experience rather than by precept, and that only as we approach middle life do we awaken to the advantages of thorough training and accurate knowledge. Experience is the greatest of all teachers, but is an expensive one. The great difficulty that confronts the teacher is to awaken the student to a sense of his responsibility and his opportunity, to make him patient and even anxious of correction, and to make him see that the true object of his education is to train himself to accurate thinking, to high ideals, and to a proper balance of all his faculties, so that he may make of himself the best that is possible. As Dr. Munger has said, "Education is to teach us how to live, not how to make a living."

It is undoubtedly true, however, that most young men who go to a professional school with a proper sense of the opportunity, and embrace it earnestly, will get from the course what they could not, or at all events would not, get without it. But the technical school cannot make an engineer: it can only give the opportunity for the young man to acquire a training, an independence of mind, a character, which will make him first of all a man, and show him how to live, and further to acquire a familiarity with the fundamental principles of science, which he ought to know in order to be an intelligent engineer instead of a parrot, an imitator, a rule-of-thumb man. The degree does not and cannot make the engineer, though some schools apparently deceive themselves by thinking that it does. The school cannot even teach: it can only offer opportunities for a man to learn, for nothing is of real value in this world but what we gain by our own efforts. The college is not a restaurant, where young men come to be filled, but a gymnasium, where opportunities are offered for the development of all the faculties, not only mental, but physical and moral. It is self-evident that a development of this kind is the proper and necessary training for the highest success in any profession, and while such development can in some instances

be obtained independent of the school, yet a school which offers suitable opportunities ought to give what most men would not be apt to obtain if left to themselves. After all, we are creatures of habit, and habits acquired in early life, whether physical, mental, or moral, are apt to remain, and, if bad, are hard to eradicate. Hence the importance of acquiring proper habits of thought, as well as of action, as early as possible.

Assuming, then, as a fundamental proposition, that a technical education is the proper preparation for the civil engineering profession, and that few men have the character, the courage, and the perseverance to be able to develop themselves unaided, the question remains: What should be the character of that education, and how far should it go. We confront once more the old question, which so many able minds have discussed: "What knowledge is of most worth?" In considering this question with reference to engineering education, one must never forget that the aim here, as in all other education, should be first of all to make men. Engineering education must not be narrow, must not be confined to strictly professional subjects, but must be broad enough to develop the man on all sides. At the same time we must remember one of the fundamental principles of the modern education, which is that, of two subjects which will give equally good training, the more useful one should be chosen. There is no excuse, at the present day, for teaching subjects which will be of no possible use to a man in his professional or social relations, simply because they afford good mental training, when there are many useful subjects which, if properly taught, afford just as good or even better training. The interest of the student will lie with the subject for which he can see a use, and interest is a necessary factor in education. But even the useful subjects cannot all be taught in a technical course of the usual length or even in a college course followed by a professional course. Some selection must be made. And here it will be well to bear in mind that, as President Eliot once said, "The actual problem is not what to teach, but how to teach." We must not endeavor to teach everything which a man will need, but must make a judicious selection of subjects, and teach these thoroughly, in such a way that the stu-

dent will gain the power to take up and master new subjects by himself. And here is reached one of the fundamental and greatest defects of education at the present day. Too much attention is devoted to the question: What shall be taught? and too little, or sometimes almost none at all, to the question, how it should be taught. Much time is devoted to the arrangement of the curriculum, and then an important subject is assigned to a teacher who can neither interest the students nor make them understand it, or who, perhaps, instead of training them to think, and giving them in this way some power of doing things they have never done before, simply turns his classroom into a restaurant, and fills his pupils up with facts, the bearings of which they are unable to appreciate, and which they promptly forget. Comparatively little attention is paid to the appointment of teachers, it being assumed, apparently, that, if a man understands a subject, or appears to understand it, he can teach it to others. It is not made a requisite for the teacher's post that a man shall have been trained in pedagogics, that he shall know something of the theory and history of education, or of psychology. These things are neglected, and men are often appointed to high positions as teachers who have had no training in education, who have to learn that science as they would any other, and meanwhile at the expense of their pupils. Good teachers are extremely rare, and the faculty for teaching is a gift, perhaps to a greater extent than most faculties. With some men it is almost intuitive, and such men do not require much training. But with most men it has to be learned. Too many men teach because they could not succeed in practical business life, and, as a matter of fact, many of them cannot teach efficiently. Ask the best men in a class from any of our colleges or professional schools, and they will probably agree in telling you of important courses from which, through no fault of their own, they derived neither information nor training, nor inspiration. It is a great pity that the results of education cannot be quantitatively expressed, and shown at the end of the year, in a balance sheet, in dollars and cents; and, further, that trustees and faculties are not dependent for their income upon the results of such a balance sheet. To pursue this line of thought would carry us too far, but the writer's

advice, to the young man who wishes to study any subject whatever, is to go to the institution where there are the best teachers of that subject. Material equipment, laboratories, and so forth are of no consequence in comparison. Mark Hopkins at one end of a log and a student at the other make a university. The teachers of engineering should study, not only engineering, but teaching, and should study the latter more than the former. One of the most encouraging educational steps in recent years in America has been the formation of the Society for the Promotion of Engineering Education. The profession of teaching is one of the most important to the community, but it is not recognized as it ought to be, and it is not paid as it ought to be. Some universities even expect to obtain men competent to teach all branches of civil engineering and to occupy positions where they should be inspirers of young men to mental achievements and to high moral ideals, and all for $1,200 a year. And even the American Society of Civil Engineers does its part, the writer regrets very much to say, to keep down and render unattractive the profession of teaching by refusing to recognize the work of a teacher in charge of a department of engineering as professional experience in charge of work. This society has preferred to recognize, as eligible to full membership, the man who has had a few years' experience in giving lines and grades for sewers, or superintending simple practical engineering works, in preference to the man who is in charge of an engineering department of a technical school, and devotes himself to teaching and inspiring the future members and leaders of the profession. In the writer's opinion, this society can do no better work, to raise the dignity of engineering teaching and of the engineering profession, than to remove this restriction from its constitution. It will gain much, and lose nothing, by recognizing experience in teaching as equal to experience in practice as a requisite for membership.

The curriculum of an engineering course should be almost entirely prescribed, with few optional or elective studies. The main opportunity for election should be between different lines of study, as for instance between civil engineering, mechanical engineering, electrical engineering, etc., but, the line or aim once chosen, the

course should be laid out by competent teachers, and should be prescribed. The idea that students should be obliged to undertake difficult and unpleasant tasks simply because they are difficult and unpleasant is happily outgrown, but life is full of such tasks, and one of the most useful results of a proper system of training is the ability to do drudgery and to attack and surmount difficult tasks cheerfully and successfully. One of the dangers of a too literal and extreme application of the elective system is that, improperly understood, it cultivates a tendency to shirk difficulties and a disposition to avoid unpleasant tasks.

One more point is to be considered. If the desirability of breadth and utility is granted, the question is whether they should be arrived at simultaneously or successively. It is held by many that they should be attained successively; that the public school or secondary school, which gives a boy his preparatory education, should be followed by the college, which gives him his broad general education, and this by the professional school, which gives him his technical education. This is the zone theory of education. The difficulty with this arrangement is that during his college course the student is working less earnestly and with a less definite aim in view than if he were pursuing a professional course from the beginning. Every institution of learning should be looked upon primarily as a place where young men and women go to do hard work; and it should be impossible for anybody to remain in the institution who does not come in this spirit and conform to this requirement. Healthful and wholesome amusements, recreation and exercises, should be a part of the training, but secondary to the main objects in view. A wrong attitude toward college work prevails to a great extent, not only among young men, but among their parents as well. It is unfortunately true that in most or at least in many colleges numbers of young men dawdle away their time, doing little or nothing except to cram for examinations; and that they emerge with little except a diploma and an enlarged cranium, and, perhaps, with a bad habit or two. This should be made impossible. The writer has never been connected with a college, but he knows from long experience how difficult it is to make even students in a professional school

awake to a due sense of their opportunities and of the proper relations of things; and it must be much more difficult in a college, where a larger proportion of students are browsing around without any definite aim, and having a good time incidentally, giving no serious consideration, before graduating, to the question of their future careers. If this view is correct, it would seem to follow that the student should be urged to select as early as possible his professional course, at least within broad limits, and that during his college course, if he takes one, he should lay out his studies with distinct reference to his future professional course. It would also seem that some non-technical subjects should be carried on, even in the professional school, so that interest in such studies should not be entirely lost. Change of occupation is rest, and studies of different kinds (as, for instance, history and mathematics) may each prove a recreation to a mind wearied with the other. Such an arrangement as has been outlined is really a continuous professional course from the beginning, in which the proportion of professional studies increases in each year: it allows the student to work always with a definite aim in view, and at the same time the proportion of technical work in the early years is not so great as to preclude a change of course if the student comes to feel, as he advances, that some other branch of professional work than the one first selected seems to be better fitted for his capacities.

Summing up the preceding discussion, the following are the principles which the writer would lay down in answer to the question which has been propounded:—

1. A technical education as given in our civil engineering schools is, if properly appreciated and made use of, the best preparation for the practice of the profession; and at the present day it is almost a necessity.

2. In laying out an engineering course, the aim should be, first of all, to develop broad-minded men, who can observe correctly, reason logically, express themselves in language and on paper,—men with imagination and with character and with good physical development.

3. Useful subjects of study, which admit and require training in

thinking, should be preferred to studies which are mere accomplishments.

4. Studies which involve discipline of the mind and observation should be preferred to those which merely give information.

5. Subject to the above restrictions, what is taught is not as important as how it is taught. The teaching profession should be better paid and made more attractive to able men.

6. The curriculum leading to any of the engineering professions should be almost entirely prescribed.

7. The choice of a profession should be made as early as practicable, and a continuous course should be arranged with that profession in view, from the beginning of the higher education. A course of five years, or perhaps of six years, either in one institution or in two, seems to be desirable for a thorough preparation.

8. The American Society of Civil Engineers should recognize the dignity of the teaching profession by making experience in teaching equal to experience in practice as a requirement for membership.

Passing now to a consideration of the question: "Is Technical Training the Best Education for Executive Work?" the writer's reply would depend upon the character of the technical training; that is, upon what is taught, and more especially upon how it is taught. It is a common criticism that graduates of technical schools are narrow, and that, while suited for subordinate positions, they are not so well qualified for high administrative positions as college men. The writer believes that, taken broadly, this criticism is unsound; that is to say, he does not believe that the average college man is better fitted for administrative work or is any broader than the average technical graduate. Nevertheless, he believes that there is much suggestiveness in the charge, and that the technical schools may profit by considering it. The number of college graduates is very much greater than the number of technical graduates, and probably a larger proportion of the latter are from humble homes, where they have been denied social advantages, and are lacking in polish, and perhaps in good manners. They have gone to the technical school because they knew that they would have to earn their own living, for which they were obliged to prepare themselves as

quickly as possible, and they have, by inheritance as well as by force of circumstances, a tendency to take an interest only in the practical professional work and to give little attention to acquiring breadth of interest or comprehensiveness of view. They have looked at everything from the professional standpoint and with a magnifying glass, and they lack the mobility of mind that would enable them to take in a problem or a condition in its entire scope or to appreciate all the various sides of a question. Such an attitude is not that of the successful administrator. The man who looks at a thing through a microscope sees more—but he also sees less—than the man who looks with the unaided eye; and the tendency in any detailed study of a scientific or technical problem is to concentrate so much attention on the details that the general relations are not perceived. The engineering student is constantly under this temptation, and, unless it is counteracted by good teaching, it may soon become a habit. Unfortunately, here again many teachers fail to do what they should, being narrow themselves or lacking in a knowledge of the large practical relations of the subjects which they teach. Engineering students constantly seem to the writer to be like men studying a book with a microscope, who can tell the details of each particular portion of the work, but who have failed to see what it was all about.

It is not apparent to the writer, however, that engineering studies are very different from other studies in a narrowing tendency. How many students of history, for instance, arrive at correct general conclusions or accurate ideas regarding the general tendencies of a period? Here, as in the study of science, there seems to be about equal opportunity for spending so much time upon detail that general relations are obscured.

A certain largeness of vision is essential for administrative work, but, in order to judge correctly as to the relative value of technical and general education as a preparation, we must not only consider what technical education can be and ought to be, but, instead of comparing college graduates with technical graduates, we must consider whether the same man would be better fitted by the college course or by the technical course. In doing this, the following are some of the elements to be considered:—

1. Most executive or administrative work has to do with engineering or involves engineering as an important element. Our railroads, mines, manufacturing establishments, etc., depend upon applied science; that is, upon some branch of engineering. A knowledge of engineering, therefore, if it is accompanied by breadth of view, largeness of conception, and the personal qualities necessary, must be of great advantage in rendering the administrative officer able to form his own opinions, and in enabling him to direct the energies of his staff in the directions most productive of efficiency, economy, and industrial development.

2. Scientific study certainly has the great moral advantage of training men to search for truth, to keep their minds open until a result is obtained, and to be satisfied with no makeshifts or evasions. Such an attitude of mind must be consonant with the highest kind of administration, however much it may conflict with the necessities of politics, graft, or deception, which seem to be the ruling elements in some executive positions.

3. Scientific study and the pursuit of truth for its own sake conduce to honesty, both of mind and of action, to frankness and fearlessness, and to uprightness of purpose. However narrow engineers may be, the writer believes that for these qualities just mentioned they are not excelled by the members of any other profession.

4. Technical training, and particularly technical experience in the handling of men, is clearly of advantage in any executive position.

After a consideration of these elements, the writer—while ready to admit the fact that many men technically trained lack the breadth of view and adaptability which is essential in executive work—believes nevertheless that technical training, if the course of study is properly laid out, with a proper proportion of liberalizing studies and pursued under teachers who direct the students always toward the larger view, is the best preparation for executive work.

NOTES ON STUDYING IN PARIS

The editors of the REVIEW have told me that it would be of some interest to the alumni to have a brief account of my last year's experience as a student in Paris.

When the year's leave of absence was granted me in August, 1905, President Pritchett suggested that it might be of benefit to the Institute instruction for me to familiarize myself with the methods of teaching Descriptive Geometry in the French technical schools, especially at the Beaux-Arts. Descriptive Geometry is essentially French in its origin, having been invented by Monge, one of the founders of the École Polytechnique in Paris, and this subject has always received special attention in mathematical and draughting instruction in all French schools.

At the Institute we require Descriptive Geometry of all our students. It has from the beginning been considered of great benefit in the elementary and preparatory training for our technical and scientific work, although it owes its position in our general first-year instruction more to its value in training the mind and imagination than because of its direct application to problems of draughting.

The school year in Paris begins the first week in November. Arriving in that city the last of August, I had plenty of opportunity for looking over the ground, meeting the professors, and arranging for attendance at lectures. I found the time ample for the registration problem, but all too short for the more important preparation in conversational French. It is extraordinary how suddenly a foreigner relapses from confidence to timidity when his interlocutor changes from a café waiter to a professor at the University. The conversational French with which he has met so boldly the exigencies of travel fails entirely when he trys to present abstract ideas to one who is as well or better informed on a subject than he himself.

A few weeks of such tentative talks as I was able to have with the mathematical professors soon put me in a most humble

frame of mind,—the proper attitude for the student. I obtained manuscript notes of the lectures at the Polytechnique, and all the text-books used in the different Lycées and in the École Centrale, and arranged, after a personal interview with M. Pillet of the Beaux-Arts, to attend his lectures in Descriptive Geometry with the regular students. M. Pillet, who has for so many years given instruction in this subject at the Beaux-Arts and at many other technical schools in France, is undoubtedly the most effective lecturer in any of the University schools. His attractive manner, his magnetic personality, make his lectures in this subject fascinating to all students. He has written several text-books, elementary and advanced, but they convey no idea of the power of the man to present his subject before an audience in an attractive and interesting way. M. Pillet is a draughtsman, and illustrates his talks every moment by chalk drawings on the board. Those who have seen Professor Morse, of Salem, illustrate his talks with blackboard drawings, can form some idea of the manner in which M. Pillet presents his problems in Descriptive Geometry to a mixed audience of artists and architects. He presents each problem as if he were for the first time discovering the geometrical principle which that problem involves, and his audience feels as if it were assisting at the discovery and invention of new mathematical laws.

These lectures of M. Pillet began at eight o'clock in the morning, which necessitated rising on the dark, wintry mornings at seven, and hurrying through cold, uncomfortable streets before daylight. The lecture-room had to be illuminated by gas in order that the blackboard might be seen. No such thing as roll-call or attendance was ever taken; but, if one were five minutes late, he was obliged to stand, as it was impossible to get a seat after the beginning of the lecture.

Had I left France in the middle of the winter, I would have been much more enthusiastic over the method used there in teaching Descriptive Geometry than I now am. The results of examinations in this subject have shown that the ratio of the number of those who really acquired a knowledge of the subject to the whole audience is much less at the Beaux-Arts than it is with us. Theirs is a very

pleasant way in which to acquire information,—pleasant to both lecturer and listener; but it is the lecturer who has done the work, and not the listener, and the result is very disappointing from an educational standpoint. I learned that in general American students do not take this course of M. Pillet's, but resort to private tutoring in order to pass the examinations. To acquire a real knowledge of a subject, one must do the work himself with his own head and hands. There was a certain glamour over the whole subject when I first entered the classes, probably due to the fact that the surroundings were strange and interesting and the language foreign, which passed away with familiarity; and, although I learned much that I hope will be useful in the development of our own courses of instruction, I do not feel that a wholesale adoption of the French method would be beneficial to us.

Directly after my return I talked over with Professor Adams the work of last year at the Institute, and was able to compare very well the two systems of instruction, and I must confess that the Institute work did not suffer much by this comparison. I realized that active work had been going on during my absence, and that the new course, based soundly on many years' experience, was indeed better adapted to our needs than the courses which I had attended. This does not by any means imply that I think the time spent in foreign study wasted. Such comparisons of work may do much good in developing the critical faculty, and may act as a stimulus for the development of new ideas, even when there is little direct adoption of methods.

With regard to the opportunities in general for foreign students in France I would say that since 1896 there has been a great change in the attitude of the universities in regard to their admission. At the present time the conditions governing admission and the requirements for degrees are quite similar to those long prevailing in Germany. This change in the attitude of the French University is already evidenced by the number of foreign students attending advanced scientific and literary courses at the Sorbonne. There are in Paris many opportunities for advanced study that are unequalled in any other parts of the world, and it is not difficult for a graduate

of our colleges to obtain a Doctorate of the University (a special degree given to foreigners) after two years' study. I do not think that French engineering schools appeal to Americans so much as do the schools of Pure Science, Literature, Music, and Art. The expenses of two years' residence can be made much the same as those in a German university town. The fees are merely nominal until you publish your thesis and distribute the copies, and never amount to a sum serious enough to be especially provided for. The Doctorate of the University which foreigners receive is not a degree entitling them to practise their profession of teaching, or otherwise, in France, as does the other degree of the University; but it is all that a foreigner usually desires to obtain from advanced university study.

With regard to student life in Paris I may say that I think this subject has been too frequently written up by outside observers with an idea of presenting a picturesque rather than a true view of the actual conditions. Outside of the purely professional schools there are a great many foreigners, and last year the Russians were in the preponderance. Most of these students were extremely poor, and found it difficult to furnish the means for actual existence. They were helped to some extent by the Student Association and by individuals. One was almost reminded of mediæval times, when students and beggars were synonymous terms in Paris. The very cheap restaurants where many of these students take their meals are similar to the five and ten cent lunch counters of our own student neighborhoods. There is no such general fraternal feeling among the students as exists in our universities,— no such thing as class organizations to bind the men together,— and it is only when a body of them take particular offence at some remark of a professor that they are inspired to act in unison. Then their cries are loud enough to be heard in the surrounding streets. The only students who seem really to enjoy their companionship and life together are the students of the Beaux-Arts. These are painters, sculptors, and architects; and, as they do their work in studios under a chosen master, they become intimately acquainted, and form very pleasant and lasting friendships. Allowance must be made for these observations, as they are necessarily superficial.

To one studiously inclined Paris affords wonderful opportunities during the winter for attending lectures by the most celebrated professors, without any charge or formality. At the Collège de France and the Sorbonne open lectures are given during every hour of the day by the most distinguished men on their faculties. While in Paris I met several American gentlemen who, without any pretence of being students and without even registering their names at any bureau, were attending four and five lectures daily at different universities, keeping this up for months. This free-lecture system can but remind a Bostonian of the Lowell Institute.

As a mere matter of experience in Paris, I will state that I had an opportunity to attend a session of the French Academy when a new Immortal read the eulogy of his predecessor, and was received into the ranks of this distinguished body. Far more interesting, however, than the address of this man, whose fame was not so wide-spread as that of many, was the sight of some of the well-known authors in their coats embroidered with palms. It was interesting to have M. Anatole France, Victorien Sardou, Francois Coppée, and others pointed out.

The public examination of the candidates for the degrees of Doctor of Law, of Letters, and of Medicine, were also interesting. And it was entertaining and instructive to listen to a series of lectures on the "Probleme Nègre des Etats-Unis" at the Bureau of Anthropology.

I lived during the year in a *pension* in the centre of the Latin Quarter,—a *pension* which was really the remnant of one of the mediæval colleges. I associated with many American students, and became as nearly a student myself as one is likely to become who has held the rôle of professor for twenty years.

In June, at the invitation of President Pritchett, I attended as delegate the fiftieth jubilee meeting of the great Society of German Engineers at Berlin. There were about two thousand people present at the general banquet. This German engineering society embraces all classes of engineers,—civil, mechanical, electrical, mining, etc.,—and is probably the largest society of this character in the world. The meeting lasted about two weeks, papers being read in the morn-

ings and excursions taken in the afternoons. There was a Grand Opera night especially for the society, and a celebration with fireworks at the Halenzee Garden, where some ten thousand or more were present. A visit paid to the Charlottenburg Engineering School gave me a chance for comparison with the French schools, and I must say that the equipment at Charlottenburg surpassed anything seen in Paris, and the general plan of education appealed to me as decidedly more practical.

In conclusion I may say that in my opinion American students are now welcomed to all European universities more cordially than ever before, and that our degrees are being more generally recognized as entitling the owner to educational privileges. Surely a year or two of residence in France or Germany will be found most profitable and enjoyable to any graduate who can afford the time.

ALFRED E. BURTON.

ADDRESS BY WILLIAM WHITMAN AT A BANQUET IN HONOR OF SIR WILLIAM HENRY PERKIN

(ALGONQUIN CLUB, BOSTON, OCT. 10, 1906)

Mr. Toastmaster and Gentlemen,—I feel deeply the honor of your Committee's invitation to say a few words to you at this time on behalf of the manufacturers of this Commonwealth, those who represent commercial interests, those who consume the products of that great industry which owes its marvellous growth to the life-work of our distinguished guest. I shall be brief.

You know Sir William's contribution to society, and you are aware of his reward. The manufacturers of the world, and we of this Commonwealth, owe him a debt which time cannot outlaw. The nations pay him tribute. There is no discordant note in the universal psalm of praise that must sound so pleasantly to his ears, the love and gratitude of his fellow-men.

The spirit of genius that inspired our distinguished guest in his work is the attendant spirit of our print works, our dye-houses, our chemical works, all kindred industries, and also of our seats of learning with their extensive laboratories of research. It is the spirit of development that will watch over the progress of his great work,—the spirit that has led man to adapt his new ideas to the physical resources of life for his comfort and his general welfare.

In studying this spirit, I have turned to Sir William's writings. Certain brief expressions linger in my mind, and they furnish a theme. In commenting on the industry which he originated, he says:—

> There is one feature connected with this industry and its great development which is of interest, and that is the immense amount of employment it has created for men of all classes, and, of course, especially for the working classes. When one considers its ramifications and its influence on other industries, it is difficult to gauge this, but it is often a very pleasant thought to me. . . .

In another instance he says of himself and his associates,—

The net result of our work should be the benefit of mankind.

And again he says with reference to the coal-tar color industry:—

The origin and foundation was the outcome of scientific research, and also its development has been due to research, hence its unique character and marvellous growth, the fruit of the union of science and industry. When I was young, it was thought quite *infra dig.* for a scientific man to associate himself with industry. The possibility of becoming a manufacturer, owing to the discovery of Mauve made me feel this very much. . . . The union of science and industry has had most beneficial results, because they have been handmaids to each other in the most remarkable way, chemical science having made progress it never would have made without the aid of this industry.

Much of the man is revealed in these words. They abound with philanthropy and a noble purpose, but, as I read them, I forget the man and become filled with the ideas which his words suggest.

We note that the wonderful growth of that industry which its originator has said should have as its net result the benefit of mankind was due to the union of science and industry,—scientific research with its discoveries and development of new ideas and industry with its application of those ideas to material things for the benefit of mankind. And, then, we note that the man who tells us these things was disturbed in his youth by the opinion prevalent in England that it was quite beneath a scientific man's dignity to be associated with industry.

It is here, gentlemen, that I find my theme, for there is borne to our ears to-day a cry against "commercialism," against commercial men, the men governing great industries which have, in my opinion, as their net result the benefit of mankind. The cry is like an echo of that similar cry in England that disturbed our distinguished guest.

Our scientific men, our men of learning, our preachers, and many other educated and intellectual men have expressed their fear of what they believe to be a great danger of modern times. This danger they have been pleased to call "commercialism." Recent

unhappy revelations have increased their laments, until the word "commercialism" is used as a term of reproach and as tainting or corrupting the body politic.

Throughout history those men who may be associated in our minds with the word "science" have won greater regard than those engaged in industry, whatever their relative contribution to the world's advance. Ought this to be so? Is there any good reason for supposing that the development of a new idea, for example, is a greater contribution to the world's progress than the application of that idea to the material comforts of man, so that it will inure to the benefit of a whole community? Is the inventor a greater benefactor than the man who places the resultant benefits of the invention at the disposal of the many? It is, of course, impossible to answer these questions. The human mind cannot measure a man's contribution to the common good. Yet, certainly, each should receive his share of the world's regard. There should be no prejudice created in the popular mind against the men of commerce.

At this point it may be well to ask, What is commercialism? What is the spirit of commercialism which is so criticised to-day? If we turn to the books, we find the word "commercialism" tersely defined as "the commercial spirit or method"; "the methods and strict business principles of men engaged in commerce," or, in other words, engaged in the interchange of the commodities of the world.

The spirit of commercialism is a noble spirit, which finds its true expression in those simple words, "Do unto others as you would be done by." The teachings of business men throughout the world have been based upon fairness and honesty. The *great* work of the business world has been, and always will be, done upon honor and integrity. The universal teaching of all nations leads men to condemn those who are not honest and fair in their dealings with their fellowmen. The true spirit of commercialism should ennoble, and not degrade, and those men who are called "commercial," who adapt new ideas to physical things for the material comfort of mankind, are performing a noble office, as noble, I believe, as those more learned and scholarly men who create these new ideas. An invention by itself may do little good, but the application of that invention to

increase the resources and facilities of man may change a whole nation. In an address on the "Commercial Value of Ideas and Physical Facts" by the late Chauncy Smith, I find these words:—

> And though men engage in commerce for gain, and not as a benevolent employment, yet any commercial man who cherishes an honorable pride, as he should, in the dignity of his profession, and in what it does for the world, may felicitate himself upon the undoubted fact that commerce, in ministering to the wants of men in the darkest parts of the earth and stimulating their desires for what civilization can furnish, is doing more for their advancement than all the benevolent and missionary enterprises of the age.

I should be happier in quoting this if the last lines read "is doing perhaps as much for their advancement as the benevolent and missionary enterprises." We cannot say that they are doing more. The commercial man and the theorist each has his place, each performs his work, and the two by their combined efforts benefit the world. No prejudice should belittle the contribution of either one. The idea that commercial men are actuated more than others by selfish motives is an erroneous one. It is human nature for every individual to toil for his own interest. Without the stimulus of self-advance there would be no progress. The man of science, the man of learning, and the man of commerce all seek an advance, but they seek their reward in different forms.

To-night we have as our guest a man whose point of view it will be well for all to adopt, a man of theory and of practice, a man who realizes that the benefit of his life-work has been the fruit of the "union of science and industry," and who, undoubtedly, believes that the man of commerce and of industrial affairs is entitled to full credit for the part he has played in the development of a great work.

In closing, I may say that, if I doubted for a moment the true spirit of commercialism, I should struggle with that doubt, and try to believe that honesty is the best policy, and that fair dealing is the basis of all our commerce.

When Mr. Garfield was nearing his death, at his request he was placed where he could gaze quietly out over the ocean. In writing of him, our great statesman, Mr. James G. Blaine, concludes with this wonderful thought,—

Let us believe that in the silence of the receding world he heard the great waves breaking on a farther shore, and felt already upon his wasted brow the breath of the eternal morning.

What a world of happiness is expressed in the few words, "Let us believe"! And I, at this point, find myself happy in saying to all commercial men, Let us believe that the true spirit of commercialism is based upon honesty and fair dealing, and the ancient tradition that we should do unto others as we would be done by, and that that spirit is a noble spirit which should be spoken of with reverence, and not with scorn.

SHIPBUILDING AND EDUCATION

VACATION JOTTINGS

Certain items that stand out in the memory of last summer's visit to Great Britain and the Continent will be jotted down here, with the hope that they will be found interesting to the readers of the REVIEW; formal reports of certain investigations can be found in the *Quarterly*, if any one cares to look for them.

The objects of the visit were to see shipyards, experimental model stations and colleges where naval architecture is taught. Beginning with the last item, it may be noted that British naval constructors are educated at a governmental college at Greenwich, and that French constructors are educated at a governmental school in Paris. Both are restricted in numbers, and admission is now limited to citizens of the respective countries, except that a few Japanese are educated at Greenwich. Formerly admission was more liberal, and some of the leading American naval architects, both in and out of the navy, were educated at these schools. The German naval constructors get their education at the Technische Hochschule at Charlottenburg or at a new school at Dantzig. The courses at these schools are open to all, and a graduate from the course of naval architecture takes his chance at a governmental position, if he chooses.

The English Royal Naval College is beautifully situated in the Greenwich Naval Hospital Buildings, which were one of the royal palaces in the time of Elizabeth. Any meddling with the old buildings (designed by Sir Christopher Wren) is properly considered to be sacrilege, and so, when they recently installed an engineering laboratory, it was put in the old fives court behind the original facade. The laboratory, though small, is to be first-class. The college is of the highest rank,—perhaps a little conservative, and with an abstract mathematical bias; but, if so, the new Director of Education to the Admiralty will know how to find a remedy. In passing, it may be noted that after the Admiralty had decided to reform their entire

educational system they chose a leading engineering educator, Professor J. A. Ewing, of Cambridge University, and have given him a free hand. The English certainly are practical in their ways.

The French school for naval constructors is lodged in a handsome old residence on Boulevard Montparnasse. It might afford somewhat restricted accommodations, were it not that the numbers are small and form only two classes, which are drawn from the École Polytechnique at the end of the two years' course there. They have recently set up shops for teaching hand-tool work in the old carriage house. A notable thing in this course is that there is only one lecture in a day, but that it is two to three hours long. One cannot withhold his admiration for the endurance of both professors and students. The approved French method of lithographing lecture notes is in force, and the notes were offered liberally to the writer. It is from this school, or in connection with it, that the greater part of the superb French literature on naval architecture and ship-building has been produced.

At the Technische Hochschule at Charlottenburg there is a grand course for naval architects and marine engineers, with six professors, several lecturers, and three hundred students. Even with the German system, which appears well calculated to discourage graduation, there are twenty or thirty graduates from this department yearly. Two of the professors are naval constructors detailed to teach warship design. A recommended course of study requires four years' residence (at this or some other high school), and a candidate for the diploma must have worked a year in shipyards or engine works. An enormous amount of ship-drawing is required and considerable marine engine drawing from the naval architects. For marine engineers the weight of the work is shifted to engine drawing. Finally, the thesis consists of the design of a ship in great detail, or of the machinery from the marine engineer. Many drawings seen were in pencil only, preserved assiduously from being soiled.

The large number of students has demanded an elaborate system of assigning and controlling problems that recalled methods of our engineering laboratories. These technical high schools having the

rank of universities have inherited certain university traditions, including academic freedom, so that each teacher may teach what and how he likes and each student may learn or not, as he pleases. There is, however, in fact, a very complete control by the Faculty of the recommended course, and no man who has been at a technical school need have it explained to him that the sequence of studies in such a course is practically automatic in its control of student work. Though no student is forced to take the recommended course, it is easy to believe that no candidate for the diploma wanders far from it. Having in mind our inviolable rule of 720 hours a term, which our Secretary administers remorselessly, a natural inquiry was, How many hours a day do these German students work? Such a question was declared unanswerable,—each student did as he chose; but the attorneys' device of narrowing upper and lower limits elicited the information that eight hours a day would be about right. Thus is the opinion of our own Faculty vindicated.

The Scottish universities have very short terms, that of the University of Glasgow lasting from the 20th of October to the 20th of March, so that a visit during term time was impossible. A notable matter is that this arrangement permits students to follow the custom of pupilage or apprenticeship in engineering offices or works. Certain firms near Glasgow co-operate in this matter, counting time in college toward the apprenticeship, and in some cases giving financial assistance. This university was the first to establish a course in naval architecture not under governmental control. The policy from the beginning has been to place the department in the hands of a successful practising naval architect. As a matter of fact, all incumbents of the chair of naval architecture have been graduates of the college at Greenwich. There appears to be growing complaint that the private practice tends to become more exigent in its demands.

A very well-established course in naval architecture was found at the Armstrong College at Newcastle-on-Tyne, the instruction having been given thus far by a lecturer. Recently a guarantee fund of £800 for five years has been raised, to secure as a professor some well-known naval architect, and what was in effect an advertisement for such a person was issued. This method, which sounds strange

to an American ear, appears to be well established in Scotland, and surprise was expressed that it might be considered *infra dig.* to apply in answer to an advertisement. Another technical college advertised two or three years ago for a professor of natural philosophy, and had eleven answers,—all from men who would have been available. But, when they advertised for a secretary and director (a man uniting some of the duties of the president and of a secretary of an American college), there were three hundred replies; which shows that a man may know the limitations of his training, but seldom doubts his judgment.

One of the most interesting features of the trip was the opportunity to see stations for towing ship models such as we have at Washington. This method of investigation was initiated by Mr. William Froude, who had previously investigated the probable rolling of the "Great Eastern" by aid of models. The first experimental tank was established by him for the Admiralty about 1872, and a later one at Haslar in 1886. Here have been made the famous investigations by Mr. Froude and his son, Mr. R. E. Froude, the present scientific expert to the Admiralty. Professor Ewing, who had visited the Institute the year before while investigating educational methods in America, very kindly gave me introduction to the chief constructor, Sir Philip Watts, through whose influence an engagement was arranged for me to meet Mr. Froude at Haslar. The day at that station, seeing the arrangements for making and towing models, for testing propellers, and for making waves and investigating their effects on the models, and talking in a familiar manner with the leading exponent of the method concerning all the interesting questions relating to it, would have been well worth a trip across the Atlantic. The technical aspect of this matter is treated in an article in the current number of the *Quarterly*, so that there is less excuse for prolixity here. The first impression and the last impression of the station itself was the admirably practical adaptation of the means to the end. Nothing was lacking that could add to the convenience and certainty of the work of the station, but nothing was done for the sake of appearances. A notable feature was the extent to which wood entered into the construction of the

carriage and the measuring and recording devices, and in all cases with the evident intention of securing lightness and stiffness. An apparatus was in place which was intended to make trochoidal waves. In use it has been found to make irrotational waves, which have the peculiarity that crests begin to break at the angle of 120°. All the models are made of paraffine hardened by beeswax, as is the practice at all European stations. The opinion was expressed that this material is desirable only where high temperatures cannot be expected. At the Italian tank at Spezia they said they had no difficulty with temperature, but that the length should not exceed twelve feet, and at Berlin models are made twenty-one feet long. It may be mentioned that at Washington models are made of wood, and are about twenty feet long, paraffine having been rejected on account of its weakness and liability to deformation in hot weather. Wood has other advantages, and it has been found desirable to store all important models, which could not be conveniently done if they were made of paraffine. Similar stations were seen at Spezia, Berlin, Bremerhaven, at John Brown & Co's. yard on the Clyde, and at the Leven Shipyard at Dumbarton. Each had features of interest, but, in general, they were of a technical nature, and, further, all were more or less direct copies of the Admiralty tank. The tank at Dumbarton, belonging to William Denny & Bros., has, however, special interest in that it has been in continuous use for twenty-two years, and a member of the firm said that, if they had another, they would keep it busy also. He further gave the opinion that every important yard should have its own tank, but that there are matters of general scientific interest that could be best treated at an open station that should not be hampered by governmental secrecy or by trade jealousy. This point was emphasized by the fact that a recent station is even now building up a necessary series of data which exists at every well-established station, but is locked up in archives or private records. One such station is now in operation in America, at the University of Michigan, and is described in a paper recently read before the Society of Naval Architects and Marine Engineers. One cannot avoid the question why the Institute should not lead in this matter, as in all other lines of scientific investigation.

A large number of dockyards and shipyards were visited, but attention will be directed only to a few salient features. For example, the "Dreadnought" was seen in dock at Portsmouth, but there was no invitation to go aboard, nor was there any lengthy description offered. This ship was launched four months after the keel was laid, and has completed her trials within the year; and yet the building slip shows no special arrangements for facilitating work. It was a case of employing all the men that could work without interference, and of seeing that no delay should arise. At private yards two cruisers were seen at a distance, for which the only information offered was that they must not tell for whom they were building. Now it appears that they, and one more of the same class, are cruiser battleships faster than any large ships afloat, and only less powerful than the "Dreadnought."

A peculiar feature was seen at Toulon, on the Mediterranean, and at Stettin, on the Baltic; namely, building slips were excavated at the lower end below the water level, and gates were provided to exclude the water during building, so that the ship was in effect built partly in dock and partly above ground. The wet end was in some cases used for docking small craft. Both seas, it will be remembered, are free from tides. The noted yard of Anseldo-Armstrong, near Genoa, where was built the "Cristobal Colon," which was beached and cast away near Santiago, has its water front on the open bay, and ships are launched on a temporary foreslip over the beach. A notable feature at all the Italian yards was the location of machinery in the open through the yard, more especially now that electric transmission of power is widely used. The climate, of course, favors this arrangement. Rather curiously, a similar tendency was noted on the Baltic, with the addition of a galvanized iron shelter; but even on the Baltic they do not have the semi-arctic winter of New England.

The German yards visited are of recent construction, with the most approved arrangements for transportation of material and machinery. They make one think of the new American yards, both countries having the advantage of starting with a free field. But the questions of general arrangement of transportation of material in the yard are

far from settled, there being no two yards in existence that are quite alike, though for that matter location and type of construction must always have a determining influence. At one of the most progressive yards, after a member of the firm had shown everything else, the question was raised concerning transportation of material, for that yard lacked the towering structures by which one can commonly locate a shipyard in the distance. With a laugh he said that he was not in the habit of saying anything on that question unless asked. Then he proceeded to explain a most complete and carefully devised method fitted to their method of construction, the two having been developed together and being exact counterparts. Further inquiry discovered the same method in another important yard, with modifications to suit conditions.

One of the most interesting yards was that at which a particular type of cargo vessel is built, or perhaps we may say manufactured, for they are all very nearly alike, and all features of the establishment are developed on the factory system. They build just twenty-four ships a year. They have commonly just two ships fitting out at the dock. When visited, the engine shop had six engines from the same drawings in process of erection, and six more were in the shop. No hesitation is shown in scrapping a tool, if a better can be found to replace it. It was said that it was necessary to import American machinery tools to start the British tool-makers out of the old ruts, but that British-made tools are preferred when the right kind can be had, because they are stiffer.

One of the most recent features is the introduction of converter gas for heating furnaces and for power. Two important shipyards on the Clyde—namely, John Brown & Co. and William Beardmore & Co.—depend entirely on the use of this gas. Now it appears that a critical feature of the system is the production of ammonium sulphate as a by-product, which can be sold so as to reduce by half the cost of the coal used; that is, from six shillings to three shillings per ton. And thus is a new bond of interest brought about between navigation and agriculture.

The new giant Cunarders were seen under construction at the yards of Swan & Hunter and of John Brown & Co., and the steam tur-

bine shops of the latter company. Seeing the turbines in the machine shop, one realizes that it is the modern development of large and accurate machine tools that makes them possible. Clearances are calculated in thousandths of an inch, while it is to be remembered that Watt thought he had made a real advance when he had reduced the inequalities of his cylinder to the thickness of a shilling. Steam turbine builders predict that a few years will reduce the marine engine to a museum curiosity; but meanwhile the internal combustion engine is even now building that is to contest the field with the turbine.

C. H. Peabody, '77.

THE INCOME FUND

REPORT OF THE COMMITTEE, PRESENTED AT THE ANNUAL MEETING OF THE ALUMNI ASSOCIATION, JAN. 18, 1907

The total subscription to the Income Fund to date is $281,047.10, pledged by 1,698 subscribers. The amount due as first instalment of the fund is $70,032.91,—an amount somewhat larger than one-fifth of the total subscription, because of pledges made by some for a single payment only, and because others who pledged a certain sum annually for five years have preferred to make a single payment covering their entire subscription.

Of this amount of $70,032.91 now due, we have received $60,916.41, leaving yet unpaid $9,116.50. This sum is due from 299 subscribers, but 69 of these men, having pledged $2,366, have either written us, asking for the privilege of delaying this payment because of business or other reasons, or have in other ways signified their intention of paying at a later date, leaving 230 subscribers pledging $6,750.50 from whom we have not directly heard. The reasons for this non-payment are doubtless many. Business reverses may account for some of the delinquents, pure negligence is no doubt the cause in other cases, while many feel that the affairs of the Institute are unsettled as to its policy and future, and are unwilling to give until the uncertainty is removed. The Committee believes that the latter class are defeating their own desires, and that, if they became more intimately acquainted with the status of affairs and the earnest co-operation which exists among the Corporation, Faculty, and alumni to solve our problems, they would recognize the need for all to pull together at the present time and help mould the future to their mind.

The delinquents are divided among the classes:—

19	1868–1880
36	1880–1890
242	1890–1906
2	Not former students

The sums due from the classes of '68, '70, '71, '79, and '80, have been paid in full.

A number of subscribers have made a second payment on their pledges, and the amount thus received is $3,005. Interest on the funds in the hands of the treasurer of the committee, less collection charges on foreign checks, amounts to $712.91.

In addition to the sum received from the subscribers to the fund, friends interested in its success have made gifts for the work of the campaign, amounting to $1,124.50, so that our total receipts for fund work have been $65,758.82.

Of the amount we have received, $59,734.32 has been handed to Mr. Wigglesworth as treasurer of the Technology Fund Committee. $5,396.91 was expended in the campaign for subscriptions, this amount covering the labor, printing, postage, and general expense of our work. $516.45 is the cost to date of collecting the first instalment of the fund, and $111.14 remains in our hands for current expenses.

In the report of Mr. Wigglesworth for the past year, as Treasurer of the Institute, the amount received from the Income Fund is stated to be $42,583.61. It should be noted that this report is of the date of October 1, and therefore does not correspond with the amount collected as stated above, much of which was received after that date. In fact, the Institute has now received from the fund $53,229.11, leaving in Mr. Wigglesworth's hands, as Treasurer of the fund, $6,140.71, which he has not as yet been authorized to transfer to the Institute treasury.

In October last the Alumni Association assumed control of our office, expanding it into an alumni headquarters, and assuming, among other duties, the clerical work which the continuation of the work of the Income Fund Committee will entail. While our work has been in progress, the clerical force and office facilities of the Fund have been used by the Alumni Association and various class organizations for the addressing and mailing of circulars and notices. For this work a charge has been made, covering the actual cost, and the amount so charged was $1,293.49, for which we have received payment in full.

These accounts are given below in a more compact form:—

Receipts

Gifts for especial work of the Income Fund Committee	$1,124.50	
Payments from the Alumni Association, Class Secretaries, and others, for work done	1,293.49	
* Payments from subscribers	63,921.41	
Interest on bank deposit, less collection charges	712.91	
		$67,052.31

* We have also received 4 $100 shares Beacon Hill Trust.

Expenditures

Amount turned over to Mr. Wigglesworth, Treasurer, and interest		$59,734.32	
Amount expended for work for Alumni Association, Class Secretaries, and others		1,293.49	
Cost of campaign for subscriptions:—			
Labor	$2,271.55		
Postage	1,513.89		
Printing	1,104.84		
Miscellaneous expenses	506.63		
		5,396.91	
Cost of collecting the fund:—			
Labor	$419.95		
Postage	67.20		
Printing	29.30		
		516.45	
Amount in the hands of the committee for current expense		111.14	
			$67,052.31

The Committee wishes to express its cordial appreciation of the assistance of many men in its campaign and its sincere thanks to the subscribers for their hearty response to its efforts.

EDWARD G. THOMAS, *Secretary.*

GENERAL INSTITUTE NEWS

CORPORATION NOTES

A stated meeting of the Corporation was held on Dec. 12, 1906, the main purpose being to hear the annual reports of the President and Treasurer, extracts from which appear on page 51.

The special committee on nominations having brought in the name of Mr. Frederick W. Wood, '77, a term member, to fill the vacancy on the Executive Committee made by the resignation of Mr. Howard Stockton, Mr. Wood was unanimously elected to serve until the expiration of Mr. Stockton's term. The revised by-laws, having been submitted in print to all members of the Corporation, were unanimously adopted after discussion and with some further minor amendment. Upon motion of one of the term members a vote was passed to the effect that abstracts of the proceedings of the Executive Committee be sent to all members of the Corporation in advance of the regular meetings.

The special committee on site, which was expected to report at this meeting, asked for further time.

BEQUEST FROM MR. CHARLES MERRIAM

In the will of Charles Merriam, of Boston, who had been a member of the Corporation for a number of years, public bequests were made amounting in all to almost $70,000. The largest is a bequest of $25,000 to the Massachusetts Institute of Technology, while smaller bequests are made to hospitals, churches, and religious associations and charitable institutions of many kinds, especially those dealing with children and institutions which carry on an educational work for boys.

REPORT OF THE COMMITTEE ON THE RETIREMENT OF DR. TYLER AS SECRETARY OF THE FACULTY

[Adopted by a Unanimous Vote of the Faculty, December, 1906.]

The Faculty of the Massachusetts Institute of Technology, having received and accepted with profound regret the resignation

of Professor Harry W. Tyler as its Secretary, after occupying that office for the past fifteen years, desires to put on record an expression of its hearty appreciation of his work during that time.

In the preparation of business for Faculty meetings, in the supervision of student records for Faculty consideration, in the oversight of entrance examinations, in his large share of the most important and most varied committee duties, in his organization and development of the administration of the Secretary's office, in responding to the countless demands incident to the office of Secretary, Dr. Tyler in each and every respect exhibited painstaking care, minute and accurate knowledge, rare judgment and wisdom, and exceptional executive ability.

As professor and head of the Department of Mathematics, his influence has been no less notable. Our own courses of mathematical instruction he has rearranged and improved. He has strengthened the department through the new appointments from time to time, and through the regular holding of conferences for discussion and mutual helpfulness. Outside the Institute he has been prominent in the functions of the College Entrance Examination Board, in establishing and carrying on the Association of Mathematical Teachers of New England, and in the work of the American Mathematical Society, preparing for this society the report on entrance requirements in mathematics, which was adopted by the society and by a large number of colleges. In these various ways Dr. Tyler has contributed most effectively to the improvement in mathematical instruction throughout the country.

The Faculty of the Massachusetts Institute of Technology, therefore, in Faculty meeting assembled, enters upon its records this testimonial to the unusually efficient labors of Dr. Tyler. In the performance of his duties as Secretary he acquired a remarkable knowledge and grasp of even the minutest details, and a no less broad comprehension and sympathetic appreciation of large problems and general policies. Aided by a wonderful memory and guided by long experience, Dr. Tyler was able to settle student questions with facility and correctness, while he equally brought

to the members of the Faculty most helpful assistance in the solution of their own special difficulties. His tact, his wisdom, his sane judgment, his untiring industry, his breadth of view, his absolute and unselfish devotion to the Massachusetts Institute of Technology, rendered Dr. Tyler's services as Secretary not only invaluable, but also, so nearly as is ever humanly possible, indispensable and incapable of fulfilment by any other single individual.

ROBERT H. RICHARDS.
CHARLES R. CROSS.
CHARLES F. A. CURRIER.
FREDERICK S. WOODS.

CATALOGUE

The Catalogue for the present year was issued on December 1. The changes from the edition of last year are not numerous, and most of them have already been mentioned in previous numbers of the REVIEW. Two new alumni organizations appear for the first time, the Technology Club of Minnesota and the Technology Club of Cleveland. The total number of graduates of the Institute is now 3,670. The total number of students in the Institute is 1,397, classified as follows: candidates for the degree of Doctor of Philosophy, 10; candidates for the degree of Master of Science, 18; fellows, 7; graduate students, 18; regular students, fourth year, 178; third year, 194; second year, 169; first year, 272; special students, 552.

NOTES

Since the middle of December President Pritchett has been confined to his home in New York by an attack of typhoid fever. He is now convalescent, and expects to return to Boston before the end of January.

At the autumn meeting of the National Academy of Sciences, held November 20, 21, and 22, in the new buildings of the Harvard Medical School, Professor A. A. Noyes read a paper on "The Conductivity, Ionization, and Hydrolysis of Salts in Aqueous

Solution at High Temperatures." Gilbert N. Lewis, research associate in Physical Chemistry, delivered a paper on "The Free Energy of Oxidation Processes."

Professor Andrew N. Grabau, of the Department of Geology at Columbia University, has been awarded the first Walker prize, given each year by the Institute for the best memoir on a scientific subject. Professor Grabau submitted an essay on "The Interpretation of Sedimentary Overlap."

The American Institute of Architects has recently held in Washington a convention, in commemoration of the fiftieth anniversary of its foundation. The Massachusetts Institute of Technology was represented officially on this occasion by Professor Bartlett, who presented a brief address of greeting and congratulation.

The regular monthly meeting of the Instructors' Club was held at the Union, November 20. The annual election of officers resulted as follows: president, Mr. Henry L. Seaver; vice-president, Mr. Francis H. Dike; secretary-treasurer, Mr. Joseph C. Riley; executive committee, Messrs. Robert Smith and Charles F. Willard. Mr. George L. Hosmer gave a very interesting talk on "The M. I. T. Eclipse Expedition to Sumatra."

The secretary is constantly in receipt of applications for men to fill positions of every kind. It is earnestly hoped that alumni who desire employment or who wish to change their occupations will keep their names on file at the Institute. Blank forms for the purpose will be supplied by the secretary.

DEPARTMENT NOTES

MINING

In the Mining Department the opportunities for students are being enlarged at the present time by improving the Wetherill electro-magnet, which makes separations of minerals requiring a very high power magnet.

A glass table a foot wide is being designed for testing the conditions for separating ores on surface tables to the best advantage.

A pulsator, with all the latest improvements and adjustments,

has just been installed for doing the most efficient form of classification of ores.

The new flotation methods of Potter, Delprat, Catermole, and Elmore will be installed on a very small scale. Some of these new designs and processes are expected to be used in thesis work this year.

Two of the assistants have accepted places, and are about leaving at this time. Mr. J. T. Glidden has gone to be assistant editor of the *Engineering and Mining Journal* of New York. Mr. Ralph Hayden is leaving shortly to enter upon work with the Anaconda Copper Company of Montana.

As an illustration of the cosmopolitan character of the Institute students, Mr. and Mrs. Richards gave a party at Technology Club on December 20 to a few of the mining students who had brought introductions or who were assigned to advisers. One was from Newburyport, Mass., one was from Boston, one was from Oskaloosa, Ia., one from Pennsylvania, one from Ohio, one from South Africa, one from Shanghai, and one from Hang-chau, China.

PHYSICS

The Department of Physics has received very considerable accessions of apparatus this autumn. Besides much that is of a miscellaneous character, there may be particularly mentioned an important addition to the collection of vacuum tubes, already one of the most complete in the country, consisting of high vacuum tubes for illustrating the recent researches of Wehnelt on the radiations from glowing metallic oxides.

There should also be mentioned several additions to the collections of gyroscopes, now a very complete one, Bose's apparatus for the study of short Hertz waves, a new Torsion Balance, and a Geryk Air Pump. This last will prove useful for the ready production of high vacua without recourse to a mercury pump.

The department has received from Mr. R. F. Gaylord the gift of a valuable ribbon chronoscope, with a tuning-fork recorder, of exceptionally good design and construction.

The most important addition is the recently perfected apparatus for the study of microscopic objects by ultra-violet light from the Zeiss Optical Works. The principle that the resolving power of a microscope increases in direct proportion to the diminution of the wave-length of the light employed is in this apparatus carried practically to the limit by using the ultra-violet radiation from the electric spark between cadmium or aluminium electrodes. This is spread out into a spectrum by suitable prisms, and the chosen portion made to fall like ordinary light upon the object on the microscope stage. But, inasmuch as the glasses used for ordinary microscope lenses are practically opaque to this radiation, the entire optical system of lenses and prisms is made of quartz. The radiation itself is totally invisible; and it is therefore necessary to make the preliminary adjustment with the aid of a fluorescent screen, on which the image becomes visible while focussing, a photographic plate being substituted for the screen when the actual picture is to be made. Many objects, particularly bacteria and crystals, which are transparent and almost invisible by ordinary light, are opaque or nearly so to the ultra-violet radiation, and are thus capable of being examined without the necessity of previous staining.

This important acquisition, in connection with the photomicrographic camera and apochromatic lenses recently purchased, equips the department for photomicrographic work and research of the highest grade.

A work entitled "Photography for Students of Physics and Chemistry," by Professor Derr, has just been published by the Macmillan Company.

NAVAL ARCHITECTURE

Improved Methods of Teaching Ship Construction

Ship construction is a subject more or less difficult for the average student in naval architecture,—more difficult rather than less,—for he frequently is a man who has had little, and more often no, experience whatever in the shipyard. Students come to us,

strange as it may seem, who not only have never stepped foot inside a shipyard, but have never seen a vessel near to. To teach such men the details of ship construction, the riveting together of plates and angles, is an important matter that has caused the Naval Architecture Department no little concern. We are inclined to believe that the present method of teaching, together with a considerable development of the course,—sixty lectures now being given in place of thirty a year ago,—is likely to accomplish the desired result.

The course aims in the beginning to teach the student what the ship is, how the shipyard is laid out, what its essential features may be, and how they are provided for. And it undertakes a discussion of the construction or building apparatus, the crane service, the heavy machine tools, pneumatic tools, and the various appliances connected with modern shipbuilding. These are all illustrated by a large number of lantern slides. The process of erecting the material is best illustrated by excursions to the various yards, but the details of the actual work can perhaps be better shown by small models than by any other means.

The department has already constructed several wooden models, one-quarter size, which represent various types of plate and angle construction, such as deck stringers, web frames, bulkheads, etc. Angle shapes to the proper scale are milled out of pine lumber, assembled in the proper form, with small wooden rivet-heads attached. The whole, when painted with a good coat of red lead, is a most excellent imitation in miniature of the actual plates and angles; and the student, no matter how unfamiliar he may be with shipyards and shipbuilding, does not fail to grasp the essential features of the work, when thus illustrated.

Lithograph plates have long been furnished to the students, illustrating this work; and, although they possess a distinct advantage, in that the student can take them away with him, they do not convey as clear an idea as can be had with these wooden models, which are made correct in the minutest detail.

These models not only are used in illustrating the lectures, but are kept in the room where they can be constantly inspected.

MODERN LANGUAGES

Professor Bigelow, assisted by Mr. Lenz and Mr. Meister, of the Department of Modern Languages, and a number of their friends, entertained the Tech Union on the evening of Saturday, the 15th of December, with German student songs. Professor Bigelow reviewed briefly the history of German student singing, and introduced each song with an English version and a few remarks upon its origin, significance, and merit. He expressed the hope that American students would follow the example of the Germans in having but one song-book for all universities, and advocated the adoption of the best songs of Germany, France, and other countries. He expressed the belief that American students would sing more than they do if they had better songs and more of them.

MATHEMATICS

Professor Osborne has been granted leave of absence for the present term on account of ill-health, but has made such improvement that he is expected to resume teaching in February.

Professor Tyler has been elected vice-president of the Association of Teachers in Mathematics in New England and a member of a committee representing local Associations of Teachers of Science and Mathematics, appointed to work out a plan for an American Federation of such associations.

Mr. Ernest A. Miller, instructor in mathematics, was married, December 15, to Miss Phillips, of Salisbury Road, Brookline.

EXTRACTS FROM THE ANNUAL REPORT OF THE PRESIDENT AND TREASURER OF THE CORPORATION, DECEMBER, 1906 *

Extracts from Report of the President

. . . During the last year the Executive Committee has had under consideration, at various times, certain administrative changes looking toward

* Limited space has obliged the REVIEW to omit many interesting extracts from the reports of the President and of the Heads of Departments which would be of great interest to all readers. The REVIEW, therefore, urges all those who do not receive a copy of the reports to send a request to the Institute for one.

a more definite assignment of duties amongst the various officers charged with administration. Until within the last few years there were only two administrative officers under the Executive Committee, the President and the Secretary. With the growth of the Institution, the increase in attendance and the consequent enlargement of all its relations, the need of a larger administrative staff was felt. For years past Dr. Tyler has combined the work of Secretary with that of head of a department. As Secretary he has had under his charge not only the general correspondence and the work of administrative assistant to the President, but the work of Secretary of the Faculty as well, which involved membership in several important committees and supervision of correspondence which had to do with student reports and student standing. After careful consideration the Executive Committee has appointed a Secretary of the Institute, who serves as administrative assistant to the President, and is in charge of the general correspondence and outside relations of the Institute. The duties of Secretary of the Faculty are performed by an officer who is elected by the Faculty, and who has to do with the immediate questions of student standing and reports and with the arrangements which the Faculty make with respect to such matters.

Professor Tyler, who has for many years performed an enormous amount of work in connection with all these duties, remains in charge of the Department of Mathematics, and expects to devote his entire time to the development of this important and fundamental branch of the work of the Institute. To the position of Secretary of the Institute there has been elected by the Executive Committee *pro tempore* Professor Dana P. Bartlett; and to the position of Secretary of the Faculty the Faculty has elected Professor Allyne L. Merrill. In taking this action, the Executive Committee has placed on record an expression of high appreciation of the faithful and efficient service which Dr. Tyler has rendered to the Institute in his long performance of the work of Secretary of the Institute and of Secretary of the Faculty.

. . . In the early history of the Institute the Corporation was the sole body of government, and dealt directly with all the details of administration. The result was unsatisfactory. The membership of the Corporation is too large to admit of the effective transaction of business in such a way, and for this reason the By-laws were amended so as to provide for the Executive Committee, which, under the Corporation, has charge of the details of administration. The creation of this body has had the tendency to carry the administration to the other extreme, and to intrust to the Executive Committee almost the entire direction of the institution.

The desirable administration lies, as it seems to me, somewhere between

these two points. The Executive Committee should take immediate charge of the actual administration, but it is most desirable, as I view it, that the Corporation should not lose its function of passing upon all matters which have to do with the general policy and the larger purposes of the institution. . . .

Since the addition of the term members, some of whom come from a distance, it seems increasingly desirable that some means should be adopted of informing members of the Corporation in advance of the nature of the business likely to come up for consideration at the regular meetings. . . .

Another plan worth trying, it seems to me, is a modification of that which is used with great success in the Board of Trustees of the Carnegie Foundation for the Advancement of Teaching.

. . . The minutes of the Executive Committee are printed in full, with a free running comment on such matters as were considered, and sent, after being printed, to all members of the Board of Trustees. . . .

In any body as large as the Corporation of the Institute which does not deal with the direct details of administration, the question of retaining the interest and the co-operation of the members is not always easy. Those in direct charge of the administration, with the best intentions, do not always understand that the man in the larger legislative body is likely to tire of an arrangement which does not involve actual duties and responsibilities. On the other hand, it is not desirable to bring before the larger body the details of administration which have to do with routine matters. Just how to combine the functions of these two bodies so as to preserve their mutual interest is one of the things which those in charge of the government of the Institute need to consider. . . .

During the past year the Carnegie Foundation for the Advancement of Teaching has been inaugurated and has begun its active work. . . .

It is not an agency for the mere pensioning of superannuated professors. The foundation stands primarily for the idea that the time has come in the history of American education when it is important—not only important, but vital—to strengthen the position of the teacher and to make it attractive to strong men, men who have initiative, who have intellectual qualities, who have social attractiveness, and the ability to influence other men. . . .

With these principles in view, the Trustees of the Carnegie Foundation for the Advancement of Teaching have . . . recognized some fifty-two institutions as entitled, by reason of fair standards and courses of study, to participation in this fund. . . .

Among institutions thus admitted to the retiring allowance system is the

Institute of Technology, so that our professors may now receive through the officers of the Institute a guarantee of the protection and the benefit of the retiring allowance system. The retiring allowance amounts, in the ordinary case, to about sixty per cent. of the active pay of the professor at the time of retirement; and under the rules of the Foundation the half of this amount is made available for the widow of the professor should she survive him. . . .

The problem which stands immediately before the government of the Institute is that of the settlement of the question of its location during the next fifteen or twenty years. This should be settled at the earliest practicable moment, in order that those who have to do with the Institute and to work for its advancement may work with definiteness of aim and with understanding of what its future is to be. . . .

It seems to me clear that for the present and for many years to come the Institute of Technology must give the greater part of its effort to the undergraduate instruction. It seems, however, equally clear that, if it is to retain any large measure of leadership, it must develop at the same time graduate and research work. To compass these two somewhat dissimilar aims in the same institution is not easy; and I feel that, of several, perhaps the best purpose I can serve at this moment is by calling your attention to the existence of these tendencies, and to the fact that your choice of the policy of the Institute is likely to have an important bearing upon its future standing according as its work tends to a purely undergraduate school or as it tends to include in its work a fair measure of graduate work and of research. . . .

. . . We men in the college of technology need to recognize that it is not the study of literature, nor of economics, nor of history, nor of any other subject, that *per se* brings culture and a broad sympathy with men. Chemistry, physics, and mechanics may be taught in such a way as to develop great humanistic interests as effectively as any of the so-called culture studies. The fact that we need to lay to heart is that the thing which brings true culture to men is intercourse with other men of culture, acquaintance with the thoughts of great men either through the medium of books or through the words of living men. It is the rubbing of one student against another. If we desire to increase in our colleges of technology a spirit of true culture and to bring about a larger common interest, the effective way to do this is to bring into our colleges teachers who are themselves exponents of this culture and of this wide human interest. . . .

It is to be remembered that the chief purpose of the school of technology is to train practitioners in applied science, just as it is the chief purpose of

the medical school to train practitioners in medicine. It is necessary that there should be that about the technical school which may encourage and inspire the small minority of those who come to the life of the teacher and investigator; but the main purpose of the school is that which I have mentioned. For this reason it is important that the student should have the view-point of the practitioner of engineering, just as it is important that the medical student should have the view-point of the practitioner of medicine; and, to bring this about, the teacher in the technical school himself should be a practitioner, just as the teacher in the medical school usually is. It is one of the advantages in the teaching of medicine that the practice may be so readily brought into the clinic before the students; and we may well imagine what sort of physicians and surgeons would be turned out if their instruction lay wholly in the hands of men who were teachers rather than practitioners.

To bring about a closer contact with the manufacturer and to secure the real interest of the man of business in the school of technology is also a vital need of applied science at this time. The college in the United States presents too often to the business man the attitude of the persistent beggar rather than the attitude of a co-laborer and sharer in the industrial problems. How to assure closer contact with industry and business is a problem which the school of technology of the next ten years must closely study.

One way of securing this closer relation, as it seems to me, would be to develop the practical service of the school to the industrial interests of the Commonwealth and of the nation. For instance, the development of the great testing and research laboratory at Charlottenburg in connection with the school of technology has been an enormous factor in cementing together the school and the industries which it seeks to serve. . . .

EXTRACTS FROM REPORTS OF DEPARTMENTS

Departments of Civil Engineering and Sanitary Engineering

. . . With still increasing numbers of students, and especially with the increasing pressure in the curriculum of other subjects to which more time ought to be devoted than has been found possible in the past, the question of proper method of conducting field work, and the possibility of saving some of the time now devoted to it during the school year, becomes a very pressing one. . . .

I believe that it is desirable that the Corporation should give immediate and serious attention to the question of inaugurating a summer school for

field work which all students in Civil Engineering should be required to attend. Some changes in the courses of study would be required, but I think it would be found necessary to require students to attend such a school only during the vacation following the second year. During six or eight weeks of continuous work they ought to complete the field work in surveying and in railroad engineering, and the hydraulic field work, leaving for the work of the term only the study of methods and instruments, and, to some extent, the plotting of results. . . .

Some years ago mention was made of the high rank obtained by graduates of these Departments in examinations for the position of Civil Engineer in the United States Navy and in the Geological Survey. The latest instance is the examination, held a few months ago, for the position of Assistant Engineer for the Board of Water Supply of New York. A grade of seventy per cent. based partially on experience, etc., was required for passing. There was a large number of applicants, and one hundred and fifty of them were successful. Of this number five out of the leading six (all but No. 3) were graduates of Courses I. and XI., and nineteen were former students of these Courses, including one non-graduate. . . .

Department of Mechanical Engineering and Applied Mechanics

. . . The improvements in the Course in Mechanical Engineering mentioned in the President's Report of January, 1906, have proved to be of great value in increasing the usefulness of the Course, and in aiding us materially to keep it more and more in touch with the needs of the times, and with the live engineering questions of the day. Among these improvements may be especially mentioned the increased time devoted to each of the fourth-year Options, the addition of work in Power Plant Design, and the greater amount of instruction in Electrical Engineering subjects.

The practice of these laboratories in carrying on a considerable amount of investigation of modern engineering problems has been, as usual, continued. . . .

Department of Architecture

. . . The good results that have attended the union of third and fourth year students in a common drawing-room have made it highly desirable that the second-year students should have part in the same arrangement. . . . They need the stimulus gained by close association with men stronger than themselves, and they would more fully appreciate how much their own work stands for if they could watch more closely its theory put in prac-

tice by those who have had a year's start of them. The third and fourth year men now meet on a common ground. They help each other in many ways. They work on each other's drawings, and they criticise each other's designs. This association seems to develop more quickly their reasoning powers, and their ability to discriminate between good and bad in architecture and to express themselves clearly in words. . . .

Departments of Chemistry and Chemical Engineering

. . . The Department has also received during the year, through the generosity of Mr. Arthur D. Little, funds for the temporary maintenance of a research assistantship in Organic Chemistry, the subject of the research to relate to the Chemistry of cellulose. An appointment will be made as soon as a suitably equipped assistant can be found. This gift is specially significant because of the purpose which underlies it; namely, to promote the interests and progress of a particular line of industry by the endowment of research in a field of pure science upon which the industry depends. . . .

Visits recently made to the laboratories of other institutions bring out clearly the great desirability of closer association of the branches of the Department than is now possible, and the loss of common interest that the present distribution of the work among the separate buildings entails. . . .

Research Laboratory of Physical Chemistry

. . . Upon the financial side the Laboratory has been again assisted by a grant of $1,000 from the William E. Hale Research Fund and by a renewal of the grant of $2,000 from the Carnegie Institution to Professor A. A. Noyes in aid of certain electro-chemical investigations which are being carried on in the Laboratory. In addition, a grant of three hundred dollars has been made to one of the research workers, Mr. Richard C. Tolman, from the C. M. Warren Fund of the American Academy of Arts and Sciences, to enable him to construct what will probably be the most powerful centrifugal machine ever made for experimental purposes, to be used in connection with an investigation of the electromotive force produced at the two ends of a rapidly rotating solution of any ionized substance; and a separate grant of three hundred dollars from the Rumford Fund of the American Academy has been made to Professor A. A. Noyes, which is to be used for the construction of a calorimeter adapted to direct thermochemical measurements with solutions at 100°. . . .

Department of Electrical Engineering

. . . The plan of having many of the problems formerly assigned as home work now solved under the supervision of an instructor is being gradually enlarged with most satisfactory results. The opportunity for helpful suggestions and the elimination of harmful student co-operation are both accomplishments of genuine importance in the proper training of the students. . . .

Department of Biology

. . . A number of special students working together in the Research Laboratory of the Department, under the direction of Assistant Professor Winslow, have accomplished an important and elaborate piece of original investigation on the systematic relations of the bacteria of the family Coccaceæ. This work has not only cleared up the relationship of this group of organisms (which, besides some occurring in air, earth, or sewage, includes forms ordinarily causing blood poisoning), but also opens up a promising method of approach to some of the fundamental problems of variation and heredity. . . .

The Sanitary Research Laboratory and Sewage Experiment Station, affiliated as it is with this Department, has constantly proved of the highest service to students of Biology, and it is greatly to be desired that it shall become a permanent part of the Institute equipment, since it furnishes facilities altogether unique and well-nigh indispensable for students of Sanitary Biology, Municipal Sanitation, and Sanitary Science, not to mention those in Sanitary Engineering and Sanitary Chemistry. . . .

Department of Geology

. . . The opportunities for productive research in Physical Geology are nowhere greater than in a well-equipped technical school. The remarkable series of disasters in the last two decades due to earthquakes, flood-waves, and volcanoes marks the inadequacy and helplessness of earth science and its need of investigation on the practical side. The time is ripe for the establishment of research laboratories of Physical Geology devoted to experimentation and exploration-measurement of earth movements and prompt investigation in time of emergency with a view to forewarning and protection in the future. The engineering and physical laboratories can effectively co-operate in such investigations. Five thousand dollars a year for ten years at the Massachusetts Institute of Technology would establish and

maintain such a laboratory, and in that time the published results ought to produce a permanent endowment. . . .

Department of English

The English Department made this year its first trial of entrance examinations under the new conditions. The arbitrary requirement in preparatory work of a list of prescribed books has been done away with; and teachers are now free to choose such works of literature as seem to them best adapted to the needs of individual classes. The examinations are now made more completely tests of the results upon a candidate of his training in the secondary schools. He is tried in composition especially for the accuracy of his thought and his power of expression; in literature for his realization and appreciation of the qualities which make literature of worth. The Department feels that it has reason to be pleased with the results, both in the papers actually written by candidates for admission and in the effects, so far as they are yet evident, of the attitude of secondary schools toward the work of the Institute. . . .

Report of the Secretary of the Faculty

. . . The distribution of third-year students among the new general options is as follows:—

Advanced English Composition	28	English Literature of the Eighteenth Century	26
Advanced French	11	French Colloquium	24
Advanced German	24	German Colloquium	16
Colonial Systems	11	History of Science	45
Economic History	31	International Law	102
Elementary Spanish	74	The English Bible	5

. . . Near the end of the year a special committee on Faculty Organization was appointed to report on a plan presented by the President for changes in the conduct of Faculty business. The committee has not yet reported upon this matter, but has been occupied since the beginning of the school year with questions growing out of the action of the Executive Committee in discontinuing the "Secretaryship of the School" and establishing a Secretaryship of the Institute. . . .

Financial grants amounting to $5,850 have been made to fifteen persons for graduate study, ten at the Institute, and five for work elsewhere. At

the end of last year the master's degree was awarded to nine candidates, including three naval constructors. There are at present eleven candidates for that degree, and ten for the degree of Doctor of Philosophy. . . .

The procedure with students entering the Institute from other colleges with advanced standing has been the subject of Faculty consideration during the year. It has been voted to excuse the bachelors of arts entering above the second year from first-year English and United States History, second-year English Literature and European History, the third-year general option, and the summer reading. Graduates entering the third year of the Courses in Chemistry, Biology, or Physics, may also offer an equivalent for Mechanical Drawing and Descriptive Geometry. . . .

Report of the Dean

. . . Mr. John F. Mahan, coach for the athletic teams, reports that the approximate number of men who have taken part in the different kinds of recognized athletics carried on by the Massachusetts Institute of Technology Athletic Association is as follows:—

Track Athletics	90	'09 Tug-of-war	61
Hare and Hound Run	36	'10 Football Team	26
Basket Ball	30	'10 Tug-of-war	65
Lawn Tennis	25	Total	344
'09 Football Team	17		

The approximate number of students who used the Technology Athletic Field from September 26 until October 27 is ninety men per day. . . .

Statistics of Illness for the School Year 1905–06

	No. in Class.	*No. Ill.*	*No. of Deaths.*
Fellows and Graduates	26	—	—
Fourth Year	381	22	1
Third Year	358	25	—
Second Year	409	41	—
First Year	292	29	1
Total	1,466	117	2

Report of Medical Adviser

. . . A large number of conditions were treated, the most numerous being diseases of the digestive apparatus, of the nose and throat, of the skin, and surgical affections. About a dozen men suffered from severe illness, such

as appendicitis, Bright's disease, malaria, jaundice, goitre, cocaine habit, and fractures. Two men had to leave the Institute on account of pulmonary tuberculosis. A small number of students were referred to specialists for treatment of the eye, ear, and skin. A small number of students were referred to the Massachusetts General Hospital, where the Institute has free beds, for the treatment of such acute diseases as appendicitis, grippe, malaria, asthma, fracture, etc. . . .

At the suggestion of Professor Talbot a talk was given the instructors and students of the Chemical Department upon the emergency treatment of injuries to which chemists are especially exposed. The subjects covered were burns, including those made by mineral acids and phosphorus, the treatment of suffocation or poisoning by gases such as hydrogen sulphide, carbon monoxide, chlorine, bromine, ammonia, hydrocyanic acid, arseniuretted hydrogen, ether, and turpentine vapors and poisoning by the accidental swallowing of mineral poisons. . . .

EXTRACTS FROM REPORT OF THE TREASURER

For the Year ending Sept. 29, 1906

. . . Substantial savings have been effected in various items of expenditure, notably in those for fuel, water, gas, and electricity. . . .Less has been spent for the publication of notes, and in the matter of general expenses there would be a decided saving were it not for certain large and unusual expenditures. . . .

. . . There has been an increase in expenses and a decrease in receipts from students' fees and the net result, comparing current expenditures with current receipts, is a deficit of $3,896.21. In this account is taken of one of the most interesting features of the year, namely, the results of the devoted and efficient work of the Income Committee. This Committee has paid over to the Institute during the year $42,583.61 free from all conditions. The collection of this sum shows the good will of the alumni, as well as the good work of the Committee.

Apart from the above the Institute has received through the generosity of Mr. Nathaniel Thayer $25,000, to be added to the permanent endowment fund. A similar amount has been received from the executors of the will of the late Charles Choate, and a like sum from the executors of the will of the late Macy S. Pope.

Charles G. Weld, M.D., has generously given $15,000 to be added to the

permanent endowment fund, and in addition to this has given $1,600 for the Department of Naval Architecture.

From the same generous but anonymous donor, who has contributed a like amount in previous years, we have received $5,000 for the Sanitary Research Fund.

Dr. A. A. Noyes has given $3,000 for the Physico-Chemical Research Laboratory.

Dr. W. W. Jaques, $1,000 for the Department of Physics.

The estate of the late William E. Hale has contributed $1,000 for the Physico-Chemical Fund.

Mrs. William B. Rogers has again given $225 for the purchase of periodicals for the Library.

From the estate of the late Ednah D. Cheney we have received a further payment of $180.

From the B. F. Sturtevant Co. a motor of the value of $150, and from Professor Henry M. Howe $100.

The net result of the whole year is an addition to the property of the Institute of $86,865.85.

The Walker Memorial Fund now amounts to $107,557.06. . . .

THE UNDERGRADUATES

CONVOCATIONS

On November 8 Dr. Frederick W. Hamilton, the newly elected president of Tufts College, addressed the student body. Before introducing Dr. Hamilton, President Pritchett gave a short talk on the value of student activities.

At a general convocation held December 7 President Pritchett spoke of the Christmas holidays, and said that any Tech man who was unable to go home on Christmas Eve would be welcome at that time at the Union, where the usual celebration would be held. He then introduced Dr. Henry Van Dyke, of Princeton, who took as his subject "Manhood."

PROFESSIONAL SOCIETIES

Civil Engineering Society.—Mr. James W. Rollins, '78, gave a very interesting and practical talk on "Causeway Construction" on November 9.

Mechanical Engineering Society.—Mr. Arthur D. Dean, '95, who is in charge of Y. M. C. A. Trade Schools throughout New England, addressed the society on "Modern Industrialism and Some of its Responsibilities" at its meeting on November 6.

On November 27 the society listened to "A Strange Story of the North Woods," told by William Lyman Underwood.

The society held a dinner on December 20 at the Copley Square Hotel. About seventy-five men attended, President Labbe presiding. Colonel Albert Pope, of the Pope Manufacturing Company, was the principal speaker, and was followed by Professors Lanza, Schwamb, Miller, and Haven.

Mining Engineering Society.—The society met on November 13 at the Tech Union to hear a talk on steel and iron castings by Dr. Richard Maldenke.

A meeting of the society was held November 27. Three members

from the Senior Class gave interesting and practical talks on their summer work in mining.

Electrical Engineering Society.—A meeting of the society was held at the Tech Union November 5, with a large attendance. President Macomber presided. Professor Shaad gave the members a talk on "Apprenticeship Courses in Large Electrical Companies."

Mr. Matthew C. Brush, '01, gave a very interesting talk to the Society at the Tech Union on December 3.

Geological Society.—Mr. R. A. Daly, Geological Commissioner of the Dominion of Canada, lectured before the society December 8 on his work in the Rocky Mountains.

THE CLASSES

1907.—This year the Senior Class will have the distinction of being considerably below the average in numbers. The official records show 178 regular fourth-year students as compared with 243 last year. The number of special students, while large, does not compare with the previous year, and thus it points to a select graduating class this June.

A number have dropped by the wayside during the three years; and now, as one begins to realize that the time is drawing near when those ties which have "made us and staid us" must soon be broken, one sees what Tech has meant, and there are mighty few who, from the sentimental side at least, do not wish that they were going to start in again next fall as Freshmen.

Plans are being made to perfect a strong class organization, so that, when 1907 join the ranks of alumni, they will be able to keep in touch with one another and the life of their Alma Mater, which is so essential to the success and growth of an institution.

As a result of the class elections this fall, the following men were chosen as Senior officers: president, Lawrence Allen; Vice-president, R. C. Albro; secretary, Alexander Macomber; treasurer, G. A. Griffin.

A most successful class dinner was held at the Union November 9, with a record attendance. The guests were Dean Burton, Professor Wendell, Bursar Rand, and from the alumni Everett Morss

and I. W. Litchfield of '85. After the dinner the meeting was thrown open to discussion of class affairs.

It was voted that 1907, as part of their class gift, undertake the publication of a new edition of the "Tech Song Book," to be dedicated to the memory of Frederic Field Bullard, '87; and a committee, consisting of Packard, Robbins, Hastings, Coffin, and Middleton, was appointed to have charge. Considerable progress has already been made, and the result will be a great source of pride to the class of 1907.

The question of cap and gown for graduation was brought up and thoroughly discussed. Rather, however, than decide such an important innovation without due thought and consideration it was voted to refer the matter to the class on a ballot vote at the time of election of the Senior Portfolio Committee. This was done, and the result was overwhelmingly in favor of the cap and gown.

The result will now be submitted to the Faculty for their approval, and it is earnestly hoped the change will be made, as it will add no little to the dignity of our exercises.

The Senior Portfolio Committee, as recently elected, consists of Robbins, Frank, Swett, Wonson, and Hastings, and an excellent book is promised.

The following men have been elected Class Day Committee: R. C. Albro, C. E. Allen, L. Allen, J. M. Barker, C. R. Bragdon, C. W. Coffin, A. H. Donnewald, J. M. Frank, G. S. Gould, G. A. Griffin, H. B. Hastings, C. D. Howe, F. S. McGregor, A. Macomber, S. A. Marx, N. A. Middleton, S. R. Miller, E. H. Packard, K. W. Richards, D. G. Robbins, O. H. Starkweather, P. N. Swett, E. F. Whitney, H. S. Wonson, W. L. Woodward.

1908.—The result of the class elections is as follows: president, H. T. Gerrish; vice-president, H. E. Allen; secretary, K. Vonnegut; treasurer, J. T. Tobin; Executive Committee, W. A. Adams, H. Webb; Institute Committee, G. T. Glover, H. A. Rapelye; Junior Prom. Committee, H. T. Gerrish, F. H. McGuigan, G. T. Glover, H. Webb, H. R. Putnam, H. A. Rapelye.

The Juniors gave their first class dinner of the year at the Union November 3. F. H. McGuigan acted as toastmaster, and Mr. Rand

and Professors Burton, Merrill, and Wendell were the guests of the evening.

1909.—The officers for the coming year are as follows: president, A. L. Moses; vice-president, A. S. Dickerman; secretary, Miss H. M. Longyear; treasurer, S. S. Bundy; clerk, J. H. Critchett; Institute Committee, R. H. Allen, B. E. Hutchinson; Executive Committee, R. M. Keeney, F. G. Taite.

There were one hundred and seventeen men at the second annual dinner of 1909, which was given November 2 at the Union. B. E. Hutchinson was toastmaster, and Mr. Rand and Mr. Blachstein were the guests of the evening. Field Day was the general topic discussed by the speakers, and the class elections were announced at the close of the dinner.

At the end the class marched in a body to Rogers steps, and dispersed after enthusiastic cheering.

1910.—The result of the elections is as follows: president, J. M. Fitzwater; vice-president, F. B. Avery; secretary, A. F. Glasier; treasurer, A. R. Nagle; Executive Committee, W. U. Foster, F. A. Hurley. The Institute Committee are T. W. Saul, B. Reynolds, and J. M. Fitzwater.

The class held its class dinner November 8. The Tech Union was taxed to its full capacity, and many were obliged to stand.

On December 5, in 6 Lowell, Dean Burton, Dr. Tyler, and Dr. Noyes addressed about two hundred first-year students on "Choice of Course."

CLUBS

Musical Clubs.—One of the most successful concerts that the clubs have yet given was the annual winter concert and dance, held December 18 in the New Century Building. Over five hundred people were present at the concert, and nearly half that number remained for the dance. On the singing of "The Stein Song" by the Glee Club, the whole house stood up, and by joining in on the chorus helped to bring the concert to a strikingly enthusiastic close. At the conclusion of the song R. E. Keyes, '07, leader of the Glee Club, called for a Tech cheer, and all responded with a vim and

rousing enthusiasm that almost shook the walls. The matrons were Mrs. Alfred E. Burton, Mrs. Walter Humphreys, Mrs. Arthur G. Robbins.

Walker Club.—In conjunction with the Technology Club the Walker Club held a reception at the Technology Club October 26. Nearly all the members and some forty guests were present. The reception was held for college graduates and students entering the Institute, in order to acquaint them with their classmates and fellow-students. Men from Cambridge, Oxford, and Heidelberg, as well as from every State in the Union, were present.

At the monthly dinner of the club held December 19 at the Technology Club, Dean Burton, Professor Pearson, and Mr. Blachstein were the guests. Dean Burton spoke of his experiences in France, particularly during his last visit, and gave some interesting descriptions of student life in the French universities.

Civic Club.—At a meeting of the club held November 23 at the Tech Union an address was delivered by Mr. F. N. Balch.

Catholic Club.—Hon. Herbert S. Carruth, ex-alderman and the present head of the Boston penal institutions, gave a forceful talk on "Catholic Leadership" before the monthly meeting of the Catholic Club on January 2.

British Empire Association.—The association held a business meeting and smoker at the Union on December 10.

Mexican Club.—About twenty Mexicans at Technology have established a club which promises to be a success, as already two meetings have been held. As yet no name has been decided upon for the club. The officers are: president, Y. S. Bonillas; vice-president, R. M. Munoz; secretary and treasurer, T. Muriel.

New York Club.—About thirty men attended the first annual Christmas dinner of the New York State Club at the Union December 24. Election of officers resulted as follows: W. I. Griffin, '07, president; F. J. Friedman, '08, vice-president; L. A. Freedman, '07, secretary; B. A. Robinson, '08, treasurer; C. W. Coffin and C. Kurtzmann, '09, Executive Committee.

Ohio Club.—The club has elected the following officers for the year: president, S. R. Miller, '07; vice-president, M. E. Allen, '08;

secretary, N. Ransohoff, '10; treasurer, W. G. Spengler, '08; sergeant-at-arms, H. G. A. Black, '10.

Missouri Club.—The annual dinner and business meeting of the Missouri Club was held at the Union December 6. Retiring President J. B. Harlow presided. Dr. Pritchett, who is a Missouri man, was re-elected honorary president of the club. The election for a new president was a close one between E. S. Brown, '08, and W. F. Dolke, '08, and was decided by the two tossing a coin. Brown won, and Dolke became vice-president. A. F. Harold, '09, was elected secretary-treasurer.

Chicago Club Dinner.—The Chicago Club held a very enthusiastic meeting and dinner at the Union on December 12. Charles R. Brigham was toastmaster. Dr. J. D. Smith, a teaching fellow in the department of American Archæology at the University of Chicago, was present, and gave the members a very interesting talk on his experiences in New Mexico and Arizona while "mining for relics" of the ancient Indian peoples.

Y. M. C. A.

The Technology Christian Association has become one of the leading factors in Institute life. Through the information bureau at the first of the year 75 men secured suitable rooms, 20 men secured employment, and a large number received information in regard to registration and other matters. In the securing of rooms, the men had a list of over 150 carefully selected rooms to pick from, all of these rooms vouched for and highly recommended.

Thirteen hundred handbooks were given out, which means that that number of students were registered on the Y. M. C. A. cards. Through the list thus obtained, 800 men were introduced to the churches of Boston. At the present time there are nearly two hundred Tech men taking up Bible study under the auspices of the Association.

KOMMERS

The Tech show held its first *Kommers* November 24.

At a special meeting, December 13, the Institute Committee voted unanimously to assume charge of the *Kommers* next term.

One hundred and ninety men attended the *Kommers* at the Union December 15. After the dinner was over, all sang "On Rogers Steps." Professor John Bigelow, Jr., gave a short history of German student singing, then started the singing of the German songs, translating each one before it was sung. The men present were led in singing by a chorus composed of Germans residing in Boston and other men who knew the songs.

Major Bigelow announced that Heath & Co. had presented the Union with a complete edition of German songs, and that he personally was presenting the Union a German *Kommersbuch*.

CHRISTMAS AND NEW YEAR'S

On December 20 about a hundred students of the Institute enjoyed the reading by Professor Bates of Dickens's "Christmas Carol."

About two hundred men who did not go home for the holidays were entertained at the Tech Union Christmas Eve, at a reception given by President and Mrs. Pritchett and Mrs. William B. Rogers. Dr. and Mrs. Pritchett were not present, as Dr. Pritchett was ill in New York. Dean and Mrs. Burton, Professors Sedgwick and Bartlett, Mr. and Mrs. Rand, and Mr. and Mrs. Mixter were present. Three of the performers from Keith's Theatre gave an excellent entertainment. After refreshments were served, the Bursar assumed the rôle of Santa Claus, and distributed the gifts from the Christmas tree, which was beautifully decorated.

About a hundred Seniors went in a body to Keith's Theatre New Year's Eve, in accordance with the old Tech custom. There was no cheering in the theatre. After the performance the men separated, but at 11.30 the class met again on Rogers steps and sang all the Tech songs and gave all the Tech cheers. At exactly 12 o'clock (corrected for temperature and latitude) the timer gave the word, and a mighty 1907 cheer burst forth.

TECH SHOW

The book of the Tech Show this year has been written by E. W. James, '07, whose manuscript was the best of many excellent ones

submitted. The name of the Show will not be announced until the second term.

ATHLETICS

FIELD DAY

The Annual Field Day took place at the Technology Field on Friday, November 16, the Faculty granting a half-holiday to the students for the purpose. The day was won by the Sophomore Class after the closest contest which has ever taken place between the Freshmen and Sophomores. The relay race and the football game were hard fought throughout, and the tug-of-war was won by the Freshmen in 2 minutes and 9 seconds. The football game and the relay race being won, however, by the Sophomores, that class secured the right to engrave its number upon the Field Day cup.

Cross Country Run.—In the best race that a Technology team have ever run Harvard 'Varsity was defeated 18 to 39. The record for the course, 24 minutes and 50 seconds, was broken by the first three men to finish, Howland going the distance 19 seconds faster. As this event preceded those of Field Day, the favorable result added much enthusiasm to the afternoon.

Tech Night.—Tech Night at the Tremont Theatre after Field Day was not as lively as former ones, but proved to be an ideal college night and the play, "The College Widow," a most appropriate one. The theatre was decorated with 1909 and 1910 banners, and all the players were wearing either 1909 or 1910 arm-bands. In the last act a dog was brought on, wearing a blanket having 1909 on each side.

CROSS COUNTRY RACE

For the sixth time Cornell won the intercollegiate cross country race this year, with Pennsylvania only three points behind. Technology finished third, with Yale fourth.

For Technology, MacGregor won sixth place, coming in a minute behind the leader. The other Tech men finished as follows: Howland, 14; Callaway, 16; Chapman, 20; Udale, 24; Batchelder, 29; and Patch, 44.

TRACK TEAM

The schedule of the team for the winter and spring season is as follows: inter-class meet, January 8; relay race against Holy Cross at the B. A. A., February 16; dual meet with Holy Cross at the Tech Gym, March 6; spring class games, April 28; dual meet with the University of Maine at Orono, Me., May 4; dual meet with Brown at Tech Field, May 11; New England intercollegiate championship meet, May 17–18. Besides these 'varsity meets the team will be entered in a number of the open meets around Boston, notably in the Newton open meet and that of the Lawrence Light Guards at Medford.

FENCING ASSOCIATION

At the recent meeting of the Intercollegiate Fencing Association Technology was again refused admittance. The West Point representative opposed the election of any new members to the association on the ground that the membership is already too large, and that the present unwieldiness would only be aggravated.

THE ANNUAL INDOOR CLASS CHAMPIONSHIP

The annual indoor class championship, held at the Gymnasium January 8, was decided in favor of 1908.

The summary:—

35-YARD DASH.—Trials. First heat: First, R. C. Albro, '07, time 4 3-5 s; second, R. M. Keeney, '09. Second heat: First, K. W. Richards, '09, time 4 2-5 s.; second, C. W. Gram, '09. Third heat: first, K. D. Fernstrom, '10, time 4 3-5 seconds. Final heat: First, K. W. Richards, '09, time 4 2-5 seconds; second, C. W. Gram, '09; third, R. M. Keeney, '09; fourth, R. C. Albro, '07.

HIGH JUMP.—First, tie between E. Stuart, '10, and R. H. Allen, '09, height 5 ft. 4 in.; second, H. A. Rapelye, '08; third, tie between H. W. Blackburn, '08, and G. Schobinger, '08.

880-YARD RUN.—First, B. L. Grimson, '08, time 2 m. 14 1-5 s.; second, H. Y. Frost, '09; third, W. R. Waldo, '10; fourth, H. E. Allen, '08.

440-YARD RUN.—First, C. W. Gram, '09, time 1 m. 3-5 s.;

second, J. Avery, '10; third, H. W. Blackburn, '08; fourth, K. D. Fernstrom, '10.

40-YARD HURDLES.—First, R. C. Albro, '07, time 5 4-5 s.; second, C. A. Eaton, '07; third, R. M. Keeney, '09; fourth, H. A. Rapelye, '08.

PUTTING 16-POUND SHOT.—First, J. H. Ruckman, '10, distance, 33 ft. 3 in.; second, C. W. Morrison, '08; third, J. H. Critchett, '09; fourth, H. L. Sherman, '09.

POLE VAULT.—First, G. Schobinger, '08, height 10 ft.; second, T. W. Orr, '08; third, J. Tetlow, '08; fourth, E. S. Russell, '10.

ONE-MILE RUN.—First, H. H. Howland, '08, time 5 m. 5 s.; second, C. L. Batchelder, '08; third, S. M. Udale, '07; fourth, R. W. Ferris, '08.

Summary of points:—

1908.	1909.	1907.	1910.
34	32	16	15

THE GRADUATES

ANNUAL MEETING OF THE ALUMNI ASSOCIATION OF THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY

The business meeting of the Alumni Association was held at the Hotel Brunswick Friday evening, Jan. 18, 1907, and was called to order by President Morss at 6.30.

The report of the Executive Committee was read by the retiring secretary, Professor A. G. Robbins. A brief account of the reception given to the class of 1906 in the Engineering Buildings was given. The change of method in electing, and the change of the privileges of associate members, which have been covered by the new amendments to the constitution, were mentioned. This change of the constitution grants to associate members all the privileges of alumni with the exception of that of holding office. A report was made of the establishment of the alumni office in Rogers Building of the Institute, and a formal report was made of the election of five candidates for term membership in the Corporation of the Institute, and also a formal report of the election to the Corporation of nine of the candidates who were selected by the alumni last year, and of the election since then of one of these candidates, Mr. F. W. Wood of 1877, to the Executive Committee of that body.

The trustees of the Alumni Fund and of the M. I. T. Life Membership Fund reported that funds had been received from seventeen new life members, making a total of 130.

The report of the Committee on the School was read by Mr. Keough, and discussed the following points: the non-election of a President during the past year; changes in the list of officers of administration; statistics of the school; the difficulties under which some of the teaching force serve; the danger of too many appointments to the instructing staff from the graduates of the Institute. The functions of this committee were also discussed in the report,

and it was even suggested that, since the alumni has representation on the Corporation, the need of this committee has been, to some extent, done away with.

In the report of the Committee on the William Barton Rogers Scholarship Fund the committee called attention to the fact that some of the former beneficiaries have not been prompt in refunding their loans, and that, in consequence, the committee has been unable to assist students to that extent which it might otherwise have done; and the committee closed its report with an exhortation to the beneficiaries,—"If you can, be as liberal to the other fellow as the fund was to you."

The report of the Walker Memorial Committee showed that the fund has risen from $109,754.91 to $114,397.11, and the chairman of this committee called attention to the fact that, although it is now ten years since General Walker died, the Institute is still without the memorial. He trusts that the question of location may soon be satisfactorily settled, so that the memorial may be erected.

A somewhat longer report was made by the Advisory Council on Athletics:—

It has been the endeavor of your Council:—

First. To study the conditions which command the physical development of the Technology students.

Second. To study the forms of athletic sports which are practicable.

Third. To adapt these sports to Institute traditions and Institute life.

Fourth. And, finally, to develop a system of athletic sports to bring out the greatest possible number of students to compete in various branches of exercise, all of which tend to develop the growing youth properly, without straining or overdoing the athletic side of college life.

The Council regretted that it could not give a more cheerful financial report, and strongly urged that some assistance be given it. Attention was called to the fee of $8 charged to students at Dartmouth College, and the suggestion was made, for consideration, that a similar tax of $5 be asked of students at the Institute for the support and maintenance of athletic teams, gymnasium, athletic field, etc. This fee "would place the Advisory Council in a position

where the financial question would not be a block to continually stumble against," and, it is believed, would not be a burden to any student.

As usual, the reports of these various committees will be published in full, and will be sent to all members of the Association.

Following are the officers elected: president, Everett Morss, '85; vice-president, Edward G. Thomas, '87; secretary, Walter Humphreys, '97; for the Executive Committee, Arthur G. Robbins, '86, and Leonard Metcalf, '92; Nominating Committee, Richard A. Hale, '77, George V. Wendell, '92, and Walter E. Piper, '94; Committee on the School, John O. DeWolf, '90; trustee of the Alumni Fund and Life Membership Fund, Edwin C. Miller, '79; Committee on Associate Membership, Leonard P. Kinnicutt, '75, and Harry E. Clifford, '86; Advisory Council on Athletics, John L. Batchelder, Jr., '90.

THE ANNUAL DINNER

The annual dinner was held at the Brunswick, beginning at seven o'clock. About two hundred and fifty alumni were present, and there were a number of members of the Corporation and Faculty, not alumni, seated at the head table. There, also, was Mrs. William Barton Rogers, the honored and greatly loved widow of the first President of the Institute. Mr. Everett Morss presided, and during the dinner called upon Mr. Edward G. Thomas, '87, who made an interesting report on the Alumni Fund (printed elsewhere).

In introducing the after-dinner speakers, President Morss expressed great regret at the absence of President Pritchett, who has been ill in New York for a number of weeks with a mild form of typhoid fever, and read a telegram from Dr. Pritchett conveying his regrets and best wishes. President Morss referred to the past year as one full of events to the Institute. He made formal announcement of the election of nine alumni to term membership in the Corporation, and of the nomination of five more, from whom three members are to be selected by the Corporation in March, and of the election of one of the term members, Mr. Frederick W. Wood,

'77, to the Executive Committee of the Corporation. He spoke also of the fact that non-graduates who are admitted, by the Executive Committee of the Alumni Association, to that body have now all the privileges of graduates excepting that of holding office.

Mr. Morss introduced, as the first speaker, Hon. Eben S. Draper, '78, Lieutenant Governor of the Commonwealth and a member of the Corporation. Mr. Draper brought the greetings of the Commonwealth, and spoke in high praise of the Institute, in part as follows:—

There is no other institution that gives to its graduates such a working capital to start with as the Massachusetts Institute of Technology. It has a place of its own in the sphere of education, turning out men that not only have a complete education, but have a complete knowledge of scientific work. The trade and textile schools that are springing up all over the State are going out of their province when they attempt to do the work that the Institute is doing, and I will make great effort to keep them where they belong. They are schools to teach trades and certain parts of the industrial work. They are attempting to take up the work in a broad way, with the result of giving only a smattering of knowledge.

The second speaker was Professor Wallace C. Sabine, Dean of the Lawrence Scientific School, who told in a most interesting way of the changes which have taken place in Harvard University relative to the department of pure and applied science during the past year. He showed that the trend at Cambridge is towards the gradual absorption of the undergraduates of the Lawrence Scientific School into the academic department and towards the creation of a graduate school of science comparable to the Harvard Law School. Professor Sabine, whose sister (Mrs. Annie Sabine Siebert, '88) is a graduate of the Institute, expressed the most cordial feelings towards Technology and a most earnest desire to work in entire harmony with it.

Mr. Frederick P. Fish, who was next introduced as representing the Corporation of the Institute, said in part:—

There is no doubt that in the past the Institute has been a great school. It started in the front rank, it stayed there, and is there now.

The young men of the Institute ought to be educated so that they are more than engineers. They should have as much breadth as they can get, so as to develop especially toward executive work. The Institute should also strive for research work, for the theoretical science of to-day is the applied science of to-morrow.

Continuing, Mr. Fish spoke with much emphasis of the high appreciation on the part of the Corporation and Executive Committee of the Alumni Fund, and pointed out how this considerable sum of money thus freely given has enabled the Trustees to increase the teaching force, to purchase much-needed apparatus, and to make essential repairs, which, had it not been for this money, they would hardly have felt themselves justified in undertaking. Mr. Fish rejoiced at the opportunity given by such gatherings as this to bring the Trustees and the alumni face to face, and expressed the hope that both bodies might understand one another better, and might work together even more closely than at present.

The last speaker of the evening was Professor Dugald C. Jackson, the newly elected head of the Department of Electrical Engineering. He spoke from the standpoint of a man on the outside of the Institute who was soon to be upon the inside, and expressed his astonishment that, in view of the crowded quarters and inadequate facilities of some of the departments, the Institute still managed to do its full duty by its students, and to turn out men so thoroughly equipped. He voiced the anxious hope of the Faculty and of all Institute men that relief for the crowded condition of most of the laboratories might soon be found. Professor Jackson made a very agreeable impression upon the alumni, to most of whom this was his first introduction.

During the evening there was much class cheering, and the speakers, as well as Dr. Pritchett, were honored with the Tech cheer given by the entire gathering.

RESULT OF ALUMNI VOTE DEC. 20, 1906

In the second election of candidates for term membership in the Corporation, 809 ballots were cast. From the eight nominees whose

names were on the printed ballot, the five who received the largest number of votes were:—

George W. Kittredge, '77. Eleazer B. Homer, '85.
Frank G. Stantial, '79. George E. Hale, '90.
Leonard Metcalf, '92.

All the candidates for officers of the Association whose names appeared on the printed ballot were elected. The four amendments to the Constitution which were recommended on the official ballot were adopted.

THE TECHNOLOGY CLUB

The Technology Club has opened a register for Technology men living away from Boston who may visit this city; and all men, whether members of this Association or not, are cordially requested to register at the Club-house, 83 Newbury Street, when in the city, in order that their Boston friends may know where to find them.

ASSOCIATION OF CLASS SECRETARIES OF THE M. I. T.

The tenth annual meeting and dinner of the Association of Class Secretaries was held at the Technology Club, Boston, on Friday evening, Nov. 23, 1906. During the dinner the business meeting was called to order at 7.35 P.M. by the secretary; and W. G. Snow, '88, was chosen chairman for the evening.

The minutes of the previous meeting on April 20, 1906 (at which arrangements were made for the annual Commencement celebration), and the financial report of the year, were read by the secretary, approved, and placed on file. Financially, the Association was shown to be in a prosperous condition, due in part to the profits from the 1905 "Tech Night Pop Concert," which the Association managed. Beginning the year with a balance of $531.11, the receipts for the year amounted to $127.10, and the expenses to $77.82, leaving a balance on hand at the beginning of the meeting of $580.39. During the meeting the 1906 Commencement Celebration Committee turned into the treasury a check for $375.33, the net proceeds of the 1906 "Tech Night Pop Concert" remain-

ing after the payment of the general expenses of this year's commencement celebration, making the total funds of the Association at the close of the meeting $955.72.

The report of the Committee on Publication of the TECHNOLOGY REVIEW was presented by J. P. Munroe, '82, as follows:—

Soon after the last annual meeting your Board of Publication was compelled, most reluctantly, to accept the resignation of Mr. Leonard Metcalf, who felt that growing professional demands and frequent absences from Boston made it necessary to sever his connection with the REVIEW. Mr. Metcalf's deep interest in Institute affairs, his wide experience of business matters, and his clear judgment made him a most valuable member, and the Board received his resignation with extreme regret. After much persuasion, Mr. Edward G. Thomas, secretary of the class of '87, accepted the position thus made vacant.

The year closing Oct. 31, 1906, has been, in contrast to the preceding two years, one of comparative quiet for the REVIEW. While awaiting the filling of the vacancy in the office of President, the Institute has entered upon no new policies and has made no very radical changes. Therefore, the duties of your Board of Publication have been limited to the securing of news from the Institute departments and the alumni and in procuring a sufficient number of articles bearing upon Technology questions to make up the 500 pages which it is its aim to provide in the four issues of the REVIEW.

Owing in large measure to the zeal of the secretaries of the most recent classes, the bulk of the matter under the general heading of "News from the Classes" has been greater than usual. There has been an increase, also, in the matter from the several departments of the Institute. Through more active co-operation of the undergraduate members, moreover, the "Student News" has been more authoritative.

While this volume has contained no matters of such wide-spread interest as the "Reunion" and the "Proposed Alliance with Harvard," the Board hopes that the four numbers have been of interest to all readers of the REVIEW, and have been a just reflection of the spirit and work of Institute men.

In its report of last year your Board expressed the fear that, unless more revenue were secured, it could not make so favorable a showing this year as in November, 1905, when there was practically no deficit. We are happy to state, however, that the close of the present volume finds us with

only the small deficit of $43.10. This result has been due to strict economy in the printing of the numbers, and to the facts that our subscriptions have been increased by eighty-three, while the income from advertising has remained practically unchanged. It should be remembered, however, that whenever the present tide of prosperity ebbs, the advertising, and possibly the circulation, will fall off. Therefore, steps should be taken to place the REVIEW, while it is out of debt, upon a sounder financial basis.

In this connection the present writer begs to remind the Association that this completes the eighth year of the REVIEW, and that with the close, preferably of the ninth, and certainly of the tenth volume, he must ask to be relieved of his duties upon the REVIEW. He ventures to suggest, therefore, that the Association take seasonable steps either to secure some one else who can give gratuitous service in the immediate supervision of each number or else so far to increase the revenues of the magazine that it can afford to employ a paid editor.

At the conclusion of the report it was accepted and placed on file; and the meeting voted, unanimously, to extend to the Committee on Publication the thanks of the Association in appreciation of the notably efficient work of the committee in behalf of the REVIEW.

Reports of the 1906 Commencement Celebration Committee were presented by Everett Morss, '85, president of the Alumni Association and chairman of the General Committee, by L. W. Pickert, '93, chairman of the Pop Concert Committee and treasurer of the General Committee, and by H. L. Coburn, '98, chairman of the Committee on Dinners and Spreads. The Commencement Celebration Committee, through its sub-committees, successfully managed the "Tech Night Pop Concert" and the class spreads on Commencement Day, June 5, assisted the classes in arrangements for class dinners, and undertook all general work of the celebration, except the alumni reception to the graduating class, which was in charge of the Executive Committee of the Alumni Association.

The report of the Pop Concert Committee showed that in every way the 1906 "Tech Night" was a success. The gross receipts from the concert were $1,538.70, of which $1,000 was paid to the

management of Symphony Hall, leaving a surplus from the concert of $538.70. From the latter were paid the general expenses of commencement, including printing, postage, clerical work, and advertising, amounting to $166.95, and up to the time of the meeting $3.58 had been received for interest on deposits, making the net proceeds of the commencement celebration $375.33. In his report Mr. Pickert emphasized the importance of engaging Symphony Hall early, and suggested that in the coming year the Celebration Committee commence its labors early in the second term of the school year, in order that the undergraduates, and the graduating class in particular, might make suitable arrangements for attending the "Tech Night Pop Concert."

Mr. Coburn, for the Committee on Dinners and Spreads, reported that, owing to the convention of the American Medical Association, held in Boston during our Commencement Week, it had been difficult to secure suitable accommodations for the classes at Back Bay hotels on Commencement Day. For this reason, in many instances, two or several classes held joint dinners. The committee made arrangements for all class spreads, which were held in Institute buildings, and in many instances the committee materially assisted the class committees in arrangements for the class dinners. Mr. Coburn suggested that in future individual class spreads be held once in five years, at the time of the general reunions, and that in the intermediate years all classes unite in a common spread at the Technology Club.

In the report for the General Celebration Committee, Mr. Morss raised the point as to whether it would be better for the Alumni Association to take charge of the commencement celebrations in the future. This led to a general discussion of the question of centralizing in the Alumni Association all alumni activities, including the publication of the TECHNOLOGY REVIEW. The sentiment of the meeting seemed to be that the Alumni Association should be strengthened in every possible way, so that in time it would be in a position to take charge, more generally, of alumni activities. It is manifestly impracticable, however, to conduct alumni business by frequent mass meetings of the alumni body,

and necessarily the management of its affairs must be delegated to some committee with wide powers, such as the present Alumni Association Executive Committee. Contrasting the latter committee with the Association of Class Secretaries, it was pointed out that the Executive Committee was small, not broadly representative, and lacking in permanence of organization and policy. According to present custom it is very rare for any member of the Executive Committee, with the exception of the Alumni Association secretary, to serve more than two years consecutively upon the committee; and, practically, that committee loses half its membership every year and is completely changed every two years. The Association of Class Secretaries, on the other hand, is broadly representative, not only of graduate, but of undergraduate interests. Included in its membership are representatives of every class from '68 to the Freshman Class, as well as representatives of all alumni organizations throughout the country and certain officers of the Institute. Its membership changes but slowly, and here permanence of organization and of policy are to be found. Taking these and other considerations into account, the meeting was strongly of the opinion that the time had not yet come to ask the Alumni Association to undertake the publication of the REVIEW, and that, for the present at least, it would be better to leave the management of the commencement celebration to the class secretaries, as the body best fitted to consider the details of the celebration. Furthermore, it was felt that, so long as the Association of Class Secretaries was responsible for the publication of the REVIEW, the profits of the celebration might well be used to form a guarantee fund for that magazine.

By unanimous vote the reports of the 1906 Commencement Celebration Committee were accepted, and the committee was given the thanks of the Association, and formally discharged.

The report of the Committee on Closer Relations among Graduate Organizations was presented by C. F. Read, '74, chairman. A feature of the year's work of this committee has been the adoption of a uniform membership card, now in use by many of the local alumni societies, which serves as a card of introduction to all Tech-

nology clubs and other alumni organizations. The Committee on Closer Relations consists of the assistant secretary of the class secretaries, as chairman, the secretary of the Alumni Association, the secretary of the Faculty, and representatives of two local societies, to be determined at each annual meeting. It was voted that for the coming year the Technology Club of Philadelphia and the Technology Club of Vermont be represented on the Committee on Closer Relations.

The desirability and need of sending representatives from the Institute to meetings of alumni in other cities was discussed at length, and the sentiment of the meeting was shown to be strongly in favor of keeping alumni in distant places informed about Institute affairs through this and other means. It was voted to suggest to the Alumni Association the desirability of sending representatives to alumni meetings in other cities; and, further, it was voted that the Committee on Closer Relations be requested to interest itself actively in securing information in regard to meetings of local societies for announcement in Boston, and to co-operate, as far as possible, with officers of the Institute in securing representation of the Institute at meetings of local societies.

A Circulation Committee, consisting of I. W. Litchfield, '85, H. K. Barrows, 95, and R. H. Stearns, '01, was appointed to assist the Committee on Publication of the REVIEW in increasing the circulation of that magazine.

Mr. Macomber, '07, announced that the gift of the present Senior Class to the Institute would be the publication of a new and revised edition of the Tech Song Book, and that in due time the co-operation of the alumni would be asked for the undertaking.

The by-laws were amended by adding the Secretary of the Institute and the Dean to the membership of the Association.

At the election of officers for the term of two years the secretary was re-elected; and I. W. Litchfield, '85, was chosen assistant secretary in place of C. F. Read, '74, who declined re-election. As a mark of appreciation of Mr. Read's five years' official service, the thanks of the Association were unanimously voted to the retiring assistant secretary.

The meeting adjourned at 10.25 P.M. The attendance was thirty-three, and included the secretaries of the Washington and Vermont alumni organizations.

FREDERIC H. FAY, '93, *Secretary.*
I. W. LITCHFIELD, '85, *Assistant Secretary.*

NORTH-WESTERN ASSOCIATION OF THE M. I. T.

The annual fall dinner of the Association was held at the Chicago Athletic Club on Friday evening, November 23, at 6.30 P.M., the attendance being the largest that we have had at any meeting, except the annual dinner. About sixty members were present, among whom were Colonel W. H. Bixby, '70, F. E. Levanseler, '71, F. K. Copeland, '76, and a representative of nearly every class down to the latest.

No outside entertainment was provided, as our committee believes these informal dinners should carry with them the full meaning of the word; and, if the attendance at this meeting is a criterion, the scheme has proven successful. F. K. Copeland, who had just returned from Boston, gave many news items, among others the status of affairs in general, the candidates for President, and also the agitation in regard to a new location. The keenest interest is taken in all the movements of the Corporation, and the news was welcomed. Others who spoke were Colonel Bixby, Hager, Woodman, and Huxley, who read a very newsy and interesting letter from "Ike Litchfield." With the aid of a piano and Young's voice the "Stein Song" and others were added to the program, which made the evening one of our best.

Preparations are afoot now to make the Annual Dinner, which comes the last of February, the largest in the history of the Association. Every Institute man is invited, and a notice to the secretary is all that is necessary.

JOHN T. CHENEY, '03, *Secretary,*
878 South Halsted Street, Chicago, Ill.

ROCKY MOUNTAIN TECHNOLOGY CLUB

The Rocky Mountain Technology Club had a dinner at the University Club, Denver, on Dec. 22, 1906, this being for the election of officers, etc. A very pleasant and informal time was enjoyed at this dinner. The election resulted in the following officers: president, F. E. Shepard, '87, Denver Engineering Works; vice-president, John E. Lonngren, '96, Colorado F. & I. Co., Pueblo; secretary-treasurer, Maurice B. Biscoe, Denver Club. By dint of questioning I succeeded in getting the following items, which perhaps will be of interest to some of the members:—

Messrs. Wiard, '99, and Brown, '05, have opened offices, with Denver as headquarters, for general consulting mining engineering business.

Mr. Lonngren, '96, is superintendent of the wire mill of the C. F. & I. Company at Pueblo.

Mr. Biscoe, '93, is located at Denver, in the line of architectural work, being occupied in the erection of the new St. John's Cathedral, which is to be quite a beautiful building.

Russell Reynolds, '06, is with the A. S. & R. Company, as chemist at its Durango plant.

Mr. Gilbert, '98, who was with the A. S. & R. Company at Eilers plant, has been transferred to the Durango plant.

Mr. Tuckerman, '06, is in the engineering offices of the C. F. & I. Company at Denver.

H. O. Bosworth, '02, *ex-Secretary*,
1742 Champa Street, Denver, Col.

THE TECHNOLOGY CLUB OF BUFFALO

The fall meeting was held on November 17 at the University Club, Buffalo. About fifteen were present, and every one enjoyed the opportunity of renewing old acquaintances and hearing the latest news from the Institute. Our next meeting will be held in January, and a large attendance is expected.

Our society now numbers about forty-five members, and is representative of almost every class from M. B. Patch of '73 to men of

the '05 class. The name has been changed to conform with the other Technology Clubs, and will hereafter be known as "The Technology Club of Buffalo."

H. A. BOYD, '79, *Secretary-Treasurer*,
125 Erie County Bank Building, Buffalo, N.Y.

THE WASHINGTON SOCIETY OF THE M. I. T.

Following a period of inactivity during the vacation season, when many of our members were away from the city, this society has seen a renewal of interest in its meetings during the last two months.

The regular annual meeting and banquet was held at the Hotel Cochran on December 12, and, as in former years, brought together a good-sized representation of resident alumni, in several features repeating the success of last year's gathering at the same place. The duties of toastmaster were again efficiently fulfilled by Mr. Marshall O. Leighton, '96.

A guest of the evening who was listened to with great interest was Professor R. S. Woodward, president of the Carnegie Institution, who gave a scholarly address on the general subject of "Technical Education," in which he showed himself to be thoroughly in sympathy with the spirit of the Massachusetts Institute of Technology. Himself a technical graduate in the earliest days of engineering as distinguished from classical college courses, and when there were absolutely no business opportunities open to an engineering graduate as such, he gave a vivid picture of the forces of prejudice which have always been opposed to the progress of technical education and the extent to which they have now been overcome. The Carnegie Institution itself stands for the promotion of the most advanced technical research; and President Woodward referred to the fact that at the present time the institution is engaged in the foundation on the Pacific coast of an astronomical observatory, at the head of which is an Institute of Technology graduate, who has become widely known for his work in astro-physics.

The society was fortunate in having also present as a guest at

the dinner Professor S. H. Woodbridge of the Institute Faculty, who is at the present time engaged in professional work on the House of Representatives Office Building in this city. From his intimate acquaintance with affairs in Boston, Professor Woodbridge was able to speak at length of many matters of interest to the society. It was especially gratifying to learn that the amount paid to the Treasurer of the Institute by the Technology Fund Committee has been enough to nearly meet the deficit for the past year.

Mr. Proctor L. Dougherty, '97, a member of the society who is frequently called to other parts of the country on professional work in the service of the government, gave his impressions of the growing importance and leadership of the Technology man in all departments of business and industry.

Dr. Henry A. Pressey, '96, a member of the society who has achieved prominence in engineering, financial, and educational circles in Washington, also made a brief address.

At the close of the meeting, subscriptions were taken up for a special fund, to be used by the Bursar of the Institute in furnishing aid to first-year students.

The officers elected for the next year are: Francis Walker, '92, president; Edwin F. Allbright, '04, vice-president; Frederick W. Swanton, '90, secretary; Francis F. Longley, '04, treasurer; Frederick G. Clapp, '01, director.

F. W. SWANTON, '90, *Secretary*,
1641 13th Street, N.W., Washington, D.C.

TECHNOLOGY CLUB OF NEW BEDFORD

The annual meeting of the Technology Club of New Bedford took place on November 1. The following officers were elected: president, Mr. C. F. Lawton; executive committee, Mr. S. C. Hathaway. The plans for the annual dinner were discussed, and the committee appointed to arrange for the dinner.

The annual dinner was held on December 4 at Tabitha Inn, Fairhaven, across the river. This is the new inn that Henry H. Rogers has just built. The guest of the club was Dean Burton,

of Tech, who spoke interestingly on the improvement of the social side of Tech life in the past few years. The even dozen who sat down to dinner enjoyed a very pleasant evening, and adjourned just in time to get the last car back to New Bedford.

C. F. WING, Jr., '99, *Secretary*,
34 Purchase Street, New Bedford, Mass.

THE TECHNOLOGY CLUB OF HARTFORD

The Technology Club of Hartford had its first meeting in the Rathskeller of the Heublein Hotel on Saturday evening, December 15. There was a large attendance present, and several new members joined the club.

Several members gave very interesting talks, and the discussion was entertaining as well as benefiting to the members. Light refreshments were served, and the meeting adjourned at ten o'clock.

GEORGE W. BAKER, '92, *Secretary*,
Box 983, Hartford, Conn.

NEWS FROM THE CLASSES

1868.

PROF. ROBERT H. RICHARDS, *Sec.*, Mass. Inst. of Technology, Boston.

At Technology Field Day the committee inaugurated the plan of suggesting that the various classes come to the Field Day sports. In answer to this three members of the class of '68 put in an appearance,—Jackson, Stevens, and Richards. Forbes was kept away by the fall of snow at his home, which, he thought, would spoil the sports. Stevens would have been kept away by the same storm but he found by telephoning that there was no snow in Boston. Richards has made one professional trip to Albany to consult about a mill process on the Pacific coast. He has also begun work on an appendix to his book on "Ore Dressing." It is now three years since the book appeared, and the progress in this line has been very rapid.

1870.

PROF. CHARLES R. CROSS, *Sec.*, Mass. Inst. of Technology, Boston.

Samuel Cabot died in Boston, November 26, of pneumonia after a short illness. The sudden death of our classmate will bring sadness to every one who has known him either in his younger days or in later manhood. The frankness and good cheer which characterized him when a student persisted through life, and every one who had to do with him was the better and stronger for such intercourse. He was a man who held tenaciously to his convictions on all subjects, but his actions were invariably based upon a strong sense of duty. He leaves behind him the memory of a life unsullied by the slightest taint of selfishness or unkindness.

1875.

E. A. W. HAMMATT, *Sec.*, 10 Neponset Block, Hyde Park, Mass.

Some weeks ago, on my way home from Mexico, I had the pleasure of spending a few hours with Ben. Oxnard in New Orleans. We had not met since June, 1875, and naturally each had changed somewhat in personal appearance. Ben was much interested to hear something of such of the boys as I could tell about. Cabot must be alive, as I found a postal from him on my desk when I reached home. I also found a report of the Commissioners of Sewerage of Louisville, Ky., supposed to have been sent by Breed, as he is their chief engineer. I have just learned that Bill Edes is appointed chief engineer of the Northwestern Pacific Railroad Company, with headquarters in San Francisco. Our classmate, Frederic Martin Palmer, born in Norton, Mass., Dec. 7, 1853, died in Lawrence, Mass., Oct. 25, 1906.

1876.

JOHN R. FREEMAN, *Sec.*, 145 Morris Ave., Providence, R.I.

On December 12 the class celebrated its thirtieth anniversary by having a dinner at Young's Hotel, at which the following members were present: Thomas Aspinwall, T. W. Baldwin, F. K. Copeland, Henry B. Wood, F. W. Hodgdon, Charles T. Main, Charles F. Prichard.—On Jan. 7, 1907, the firm of Dean & Main was dissolved; and Charles T. Main, '76, will open new offices at 45 Milk Street, Boston, Mass., as soon as they are ready, and will carry on a business devoted to the design of industrial plants and work connected therewith.—The son of Charles F. Prichard, Charles R. Prichard, was married to the daughter of Benjamin C. Mudge, '77, Oct. 22, 1906.—The daughter of Arthur L. Mills was married Oct. 3, 1906.—John R. Freeman has recently returned from several weeks of investigation of Los Angeles' heroic project for water supply from the Owens River, which proposes

an aqueduct two hundred miles long, conveying four hundred cubic feet of water per second for domestic supply and irrigation. The aqueduct starts at an elevation of 3,820 feet above sea-level, near the base of Mount Whitney, the highest of the Sierras, and follows along the base of the eastern foothills of the Sierra, and along the edge of the Mohave Desert, until it crosses under one of the Sierra Madre ranges, with a five-mile tunnel, and there drops some fifteen hundred feet in a steep canyon, affording an exceptionally attractive site for water-power development, after which the water will pass on through other tunnels and conduits to the head of the San Fernando watershed, from which Los Angeles is already supplied. In addition to supplying water for the million inhabitants that Los Angeles expects to have at some future time, there will be water enough to irrigate one hundred thousand acres for intensive farming, like the cultivation of olives, oranges, and vineyards, and thus to develop the equivalent of four "Riversides" in the suburbs of Los Angeles. The water and the fall will permit the development of from fifty thousand to one hundred thousand horse power of electrical energy, as measured at the consumers' end in Los Angeles, or more power than all that developed at Lawrence, Lowell, Manchester, and Holyoke combined. This will doubtless be a great factor in the industrial development of Southern California and the building of factories in the vicinity of Los Angeles. Mr. Freeman was serving as one of a commission of three engineers to report on the feasibility and cost of the project. Mr. Freeman continues as consulting engineer to the Board of Water Supply, New York, and in charge of the Factory Mutual Insurance interests in Providence, with which he has long been identified.

1877.

RICHARD A. HALE, *Sec.*, Lawrence, Mass.

Benj. C. Mudge is associated with the Oxford Fibre Company, with mills at Gardner, Mass. The Boston office is 85 and

86 Delta Building, 10 Post-office Square. The company utilizes the waste products from flax-making yarns that can be used in many articles, as twine, harness, and shoe thread, etc.—Fred. W. Wood has recently been elected a member of the Executive Committee of the Corporation.—F. C. Holman has been located in South America for many years, and at present is at Bolivar, Sur de Cauca, in Colombia, engaged in gold mining. He has made a special study of the geological features of that portion of country. His home is at San Francisco, and the old homestead was destroyed by dynamite to prevent the spread of the flames at the time of the earthquake. His mother had made this her home for more than fifty years. Everything was practically destroyed.—George F. Swain is acting as consulting engineer for the Bridge Commission in Lawrence, Mass., which is to report on the feasibility of a new highway bridge across the Merrimack River, between the two bridges at present existing.

1878.

LINWOOD O. TOWNE, *Sec.*, Haverhill, Mass.

With a thoughtfulness that the class has been made to realize for many years, President Baker was the host at his Ivy Street, Brookline, home for the annual dinner and reunion. This was held January 5. Present were (besides Baker) Bradford, Collier, Draper, Higgins, Miller, Nichols, Rich, Robertson, Rollins, Sargent, Sawin, Schwamb, Williams, Woolworth, Towne. Mrs. Baker assisted in receiving the men, but to their regret withdrew from discussing the after-menu. The meetings of the class have been informal for years, and in its most delightful way was the same this. The Lieutenant Governor had to answer—or attempt to—a lot of questions which, as a member of Tech Corporation, he never had on M. I. T. exam. papers. Around the logs of the great fireplace in Baker's music-room, after dinner, the fellows talked of about everything, from early days and affairs political to "Trinity." It was pretty hard to leave.

1883.

HARVEY S. CHASE, *Sec.*, 27 State Street, Boston.

Rufus F. Herrick has recently organized the "Somerset Springs Company," to manufacture and sell carbonated beverages throughout New England. Mr. Herrick has special chemical formulæ for such products under requirements of the new pure food laws.

1884.

PROF. WILLIAM L. PUFFER, *Sec.*, 307 Equitable Building, Boston.

Edward V. Sedgwick was in Boston, and called on Tyler, who says he looked much as he did way back in the 80's, and presumably is prospering, as he left a check for the class secretary to square up all dues. The secretary hopes a good many fellows will call on Tyler.—A good bit of class news is conveyed in the following clipping from the Boston *Transcript* of December 15:—

Abbott L. Rotch, director of the Blue Hill Observatory and one of the leading meteorological experts of this country, has been appointed professor of meteorology at Harvard by the Harvard Corporation.

Professor Rotch has for nearly a quarter of a century been conducting exhaustive scientific investigations into the celestial world, working both here and abroad. Universities of Germany, France, and England have honored him with high degrees. He has made several important discoveries, and contributed many useful books on meteorological subjects.

Graduating from Technology in 1884, Professor Rotch early won a reputation as a student of the stars. After two thrilling expeditions to South America and Africa, where he hazarded the dangers of mountains, he established in 1885 the Blue Hill Observatory, and has since maintained it.

About that time he published a book, graphically written, entitled "Sounding the Ocean of Air," that has since been used as a text-book in many leading colleges and schools. Because of it he became editor of the *American Meteorological Journal*, which position he held with distinction for a decade.

—William L. Puffer recently opened an office for the transaction of an engineering business at 307 Equitable Building. He will give special attention to expert testimony in law cases, examinations, choice and layout of new systems, reports and tests of plants, etc.

1885.

I. W. LITCHFIELD, *Sec.*, 161 Devonshire Street, Boston.

The Boston *Transcript* of October 24 reports that the Confectioners' Machinery and Manufacturing Company of Springfield, of which Frank Page is president, has purchased 190,000 square feet of land as a site for a new factory. The company will not build immediately, but in time will doubtless cover practically the whole tract with a large modern factory, thus establishing one of the greatest plants in the country for the manufacture of confectioners' machines and apparatus. The Confectioners' Machinery and Manufacturing Company is allied with one of the greatest machine manufacturing companies in Paris, France, and the two concerns send their machines all over the world. The company is successful to a very marked degree.—The board of managers of the National Society for the Promotion of Industrial Education held a meeting in the office of the Carnegie Foundation, New York City, December 8, and elected Professor Charles R. Richards, of Columbia University, secretary. Dr. Pritchett is president of the society. Professor Richards has been very prominently identified with this movement from its inception, and the great success of the movement has been largely due to his energy and ability. Professor Richards was in Boston attending the Social Educational Congress, and presided at the sessions of the section on industrial education.—The Boston *Herald*, December 23, had an article descriptive of "The Haunt," the historic dwelling owned by General W. E. Spaulding, of Nashua, N.H. The house was built in 1740, and contains General Spaulding's collection of antiquities. On the way to camp at Squam Lake by

automobile, two years ago, some of the men made a call on Billy Spaulding, and were initiated into the mysteries of the old house. It was filled from cellar to garret with old furniture, china, and domestic articles of every description. The collection is extremely valuable, and has been drawn on from time to time by the various antiquarian societies in this country. It has been, however, a very great care; and his decision to dispose of a part of the collection was a gratification to collectors. The house will probably be secured by one of the historical societies in Nashua.—W. J. Mullins, of Franklin, Pa., was in Boston in November, and made a few calls on '85 men. He was in excellent health and very enthusiastic over his new White Steamer, in which he has spent most of the summer.—Professor Tyler, having resigned the secretaryship of the Faculty, Professor Merrill has been elected secretary. It will be remembered that Merrill was acting secretary for some time when Dr. Tyler was in Europe, and on account of his duties was unable to attend the reunion. We congratulate Merrill on his election as secretary, and hope that he has made a stipulation that no Institute work is to interfere with any class functions.—C. M. Wilder visited some of his classmates in Boston last summer on his way to Cape Cod, where he spent his vacation.—Newell was in Boston recently, attending a meeting of the Corporation of the Institute.

1887.

EDWARD G. THOMAS, *Sec.*, 88 Broad Street, Boston.

John W. Adams, who is now assistant to Mr. Samuel Stickney, general manager of the Chicago Great Western Railway, St. Paul, Minn., was in Boston in November for a short visit.—Solomon Sturges is recovering slowly from the effects of the automobile accident, which was noted in the last issue of the REVIEW. He has not yet been able to return to his office, and will probably recuperate for some time in the South before being able to take up business affairs.—Timothy W. Sprague will move on February

1 from his present quarters, 4 State Street, to 88 Broad Street, Boston. Sprague, in association with Charles K. Stearns, is engaged in the installation of several large electric plants for the distribution of power for coal mining purposes, in the New River district of West Virginia.—Charles K. Stearns will also shortly move to 88 Broad Street, Boston.—Our twentieth anniversary will be celebrated at Chebacco Island, Essex River, Mass., June 15, 16, and 17, 1907. The committee is hard at work on plans to make this the biggest, busiest, and best outing we have had.—C. A. Barton, Eastern agent for the Nernst Lamp, has had the territory extended over which he has charge, and now controls the Eastern States as far South as Virginia. He has recently moved the Nernst office to 124 W. 42d Street, New York.

1888.

WILLIAM G. SNOW, *Sec.*, 1108 Penn Mutual Building, Boston.

The secretary regrets to report the death of Frederick L. Sayer, which occurred in the Brooklyn Hospital, November 23, from grippe and complications.—Charles L. Weil has resigned his professorship at the University of Michigan, in order to devote his entire time to his consulting engineering practice. His offices are located in the Union Trust Building, Detroit.—B. G. Buttolph and William G. Snow were present at the annual meeting of the American Society of Mechanical Engineers in New York in December.—The *Inland Architect* for November gives a full-page exterior view of the new James H. Bowen High School, Chicago, designed by Dwight Heald Perkins, architect for the Board of Education.—In the absence of Professor Woodbridge, William G. Snow has given a course of lectures on "Heating and Ventilation" to the third-year architects.—George C. Scales returned from Porto Rico several months ago, and became associated with the Stone & Webster Engineering Corporation. He is now located in Columbus, Ga., as superintendent of construction of a large power plant.

1889.

PROF. W. E. MOTT, *Sec.*, Mass. Inst. of Technology, Boston.

At the annual meeting of the American Society of Mechanical Engineers, recently held in New York City, George M. Basford was elected one of the managers of the society. Basford has recently delivered an address before the students in engineering of Purdue University, on "The Work of the Motive Power Officer in the Management of American Railroad Operation."—The Boston *Transcript* of October 18 contains the following note in regard to C. N. Borden:—

> At a special meeting of the directors of the Richard Borden Manufacturing Company, Charles N. Borden was regularly elected treasurer, clerk, and a director of the corporation to succeed his father, Richard B. Borden, who died a few days ago. Mr. Borden had been performing the duties of the position during the illness of his father, and his appointment was generally expected as the successor of the latter.

A second edition of "Mechanics Problems for Engineering Students," by Professor Frank B. Sanborn, of Tufts College, has recently appeared from the press of J. Wiley & Sons.—A. W. French, president of the French Oil-mill Machinery Company of Piqua, Ohio, writes:—

> Our company has all the business it could possibly attend to. We are still in the same old business, and have enlarged our plant and equipment nearly 100 per cent. this summer.

—*Engineering Magazine* says:—

> Mr. G. W. Whipple has been recently appointed by the Merchants' Association of New York on a committee to inaugurate a campaign against the pollution of rivers. The firm of Hazen & Whipple has been retained by the city of Brisbane, Australia, to report on sources of water supply for the city.

1890.

GEORGE L. GILMORE, *Sec.*, Lexington, Mass.

Darragh de Lancey is in Waterbury, Conn.—George E. Hale and wife were in Boston a week in November. He has now returned to Pasadena.—C. C. Babb is with the United States Reclamation Service in Browning, Mont.—Henry Plympton Spaulding, who with his family returned from a year's sojourn in Italy recently, has taken a studio at 320 Boylston Street. His year's work in Italy amounted to over one hundred water-colors. His first exhibition of the season was held from December 5 to 19. Mr. Spaulding is building a new house and studio at East Gloucester, which he expects to occupy next summer.—Walter F. Cook can now be found at his new restaurant, 88 Boylston Street, Boston. —Charles H. Alden, who was in California last summer, is now in Boston. After completion of the Harvard Medical School Buildings, of which he had charge, he severed his connection with Shepley, Rutan & Coolidge, and is now in business for himself at 20 Beacon Street.—E. A. Emery is at 1417 Railway Exchange, Chicago, Ill.—S. W. Moore is now at 173 Oakleigh Road, Newton, Mass., having been in Colorado Springs most of the time the past sixteen years.—A. W. Woodman is now in Chicago, at 906 Tribune Building.

1891.

HOWARD C. FORBES, *Sec.*, 88 Broad Street, Boston.

Garrison has just resigned his agency of the De Laval Steam Turbine to go with the Choralcelo Manufacturing Company as consulting engineer. The Choralcelo Manufacturing Company is producing a new musical instrument, possessing many marvellously interesting qualities. Its importance in the musical world cannot be exaggerated. It is being shown only privately, and Garrison will be

pleased to have any one interested either call upon him or telephone him at his new office, 33 Broad Street, Boston,—Telephone 1010 Main,—and he will arrange for a private hearing.

1892.

PROF. WILLIAM A. JOHNSTON, *Sec.*, Mass. Inst. of Technology, Boston.

As a result of the recent vote for term members, the name of Leonard Metcalf will be presented to the Corporation.—One of the recent publications was written by Louis Derr. Subject, "Photography for Students of Physics and Chemistry." The book is published by the Macmillan Company of New York.—Prescott A. Hopkins, architect, has recently removed his office to 801 Provident Building, 50 South Fourth Street, Philadelphia, Pa.

1893.

FREDERIC H. FAY, *Sec.*, 60 City Hall, Boston.

Orton W. Albee has recently been engaged in a mining venture which, through his efforts, has turned out very handsomely, although last year he came near paying dearly for his experience. Early in 1905, while associated with Charles C. Bothfeld, '84, in Detroit, he met a Canadian railway engineer who had been building a government railroad through the backwoods of Ontario, and who brought rumors of the finding of silver along the line. After some investigation which seemed to confirm the report, Messrs. Bothfeld and Albee and two or three others organized a prospecting party, which went into the woods over this railway line, riding in a freight train, as passenger service was not yet in operation, and alighted at what has since come to be the widely known town of Cobalt. After three hours of prospecting the party discovered traces of silver; and the next day, by the use of dyna-

mite, a vein was exposed. Albee was put in charge of the development of the property, which was named the Violet Mine; and, although his resources were the most primitive, and the only labor to be had was that of lumbermen who knew absolutely nothing of mining, the undertaking was successful from the start, and the first shipment of ore proved the worth of the mine. Albee continued to work the property from the spring of 1905 to the fall of 1906, spending practically his entire time, winter and summer, at the mine. By the summer of 1906 the town of Cobalt had developed to such an extent that Mrs. Albee and their daughter were able to join him, which was a most fortunate circumstance, for in the early fall Albee suffered from a very severe attack of ptomaine poisoning, due to eating canned goods; and it was only by Mrs. Albee's skilful nursing, followed by medical aid from Detroit, that he pulled through. When Albee was able to travel, he and his family went to Mrs. Albee's home in Newark, N.J., where he completely recovered from his illness. Late in the fall the mine was sold at a handsome profit to its owners. Albee now resides at 98 Bloomfield Avenue, Newark; and he is engaged in private practice as a consulting mining engineer at 20 Fulton Street, New York City.—Herbert W. Alden, for many years engineer with the Pope Manufacturing Company of Hartford, Conn., is mechanical engineer with the Trinken Roller Bearing Axle Company of Canton, Ohio, his address being 1361 Woodland Avenue, Canton.—The address of Charles V. Allen, engineering salesman with Westinghouse Electric and Manufacturing Company, is Cadena 19, Mexico, D.F., Mexico.—Frank S. Badger is principal assistant engineer of the Monterey Works and Sewer Company, Limited, his address being Apartado 291, Monterey, Mex.—Frederic W. Baker's address is Box 256, Bridgeport, Conn. He is still naval architect for the Lake Torpedo Boat Company.—William Thomas Barnes and Miss Maude Frances Getchell, of Waterville, Me., were married in that city on Oct. 17, 1906. Mr. and Mrs. Barnes reside at 566 Blue Hill Avenue, Dorchester, Mass. Barnes is assistant engineer to Leonard Metcalf, consulting engineer, at 14 Beacon Street, Boston.—Maurice Bigelow Biscoe and

Miss Agnes Elizabeth Slocum, daughter of Mr. and Mrs. Winfield Scott Slocum, were married at Newtonville, Mass., Nov. 24, 1906. Mr. and Mrs. Biscoe will reside at 790 Dowing Street, Denver, Col., in which city Biscoe is practising his profession of architecture.—Samuel N. Braman, with the Westinghouse Machine Company, has been transferred to Philadelphia, and is now located at 1006 North American Building, Philadelphia, Pa.—Charles Nourse Cook is located at Slatersville, R.I., where he is superintendent of the Slatersville Finishing Company. He continues also to be president of the Silver Spring Bleaching and Dyeing Company of Providence.—The address of Charles D. Demond, testing engineer with the Anaconda Copper Mining Company, is 704 Main Street, Anaconda, Mont.—Mrs. Frederick N. Dillon, of Fitchburg, Mass., was instantly killed in an automobile accident near Wayland on the afternoon of Oct. 18, 1906. Mrs. Dillon was Margaret Downes Morse, daughter of George F. Morse, of Leominster. She was married to Frederick Nathan Dillon, Nov. 9, 1898.—Samuel D. Dodge, assistant engineer with the New York Board of Water Supply, is located at Cornwall-on-Hudson, N.Y.—William G. Houck, formerly secretary-treasurer, is now president of the Buffalo Structural Steel Company. Houck's address is reported as 551 La Fayette Avenue, Buffalo, N.Y.—Arthur H. Jameson is superintendent of the steel castings department of the Malleable Iron Fittings Company at their large new Branford plant. Jameson's address is Box 612, Branford, Conn.—John W. Logan is with the steel works department of the Alan Wood Iron and Steel Company at Conshohocken, Pa.—At the annual meeting of the Corinthian Yacht Club of Marblehead, held at the Boston Athletic Association on January 9, Henry A. Morss, commodore in 1906, was re-elected commodore of the club for 1907. Reports of committees showed that the club had been very prosperous during the first year of Morss's administration; and it begins the present year with a most flattering outlook for a record season both in membership and in social and yachting features. In his annual statement Commodore Morss made the important suggestion that the club begin

collecting data about past and present boats. He said: "I think the club should keep for future reference records of boats and yachts which have been built, leading up to the development of the present fleet. I feel reasonably certain that there are in the possession of a good many members models or half-models for which they have no particular use at the present time. These models, if in the possession of the club, would show more clearly than anything else could the various types of yachts which have been enrolled in the club since its organization. Plans giving lines, sail plans, and cabin arrangements would also show a great deal. My suggestion is that members who have such models or plans present them to the club, for such a collection would be of great interest and value."—Fenwick F. Skinner, civil engineer with Westinghouse, Church, Kerr & Co., is the resident engineer in charge of the construction of the new Pennsylvania Railroad Terminal in New York City. Skinner's field engineering staff numbers over sixty men. A part of the work consists in placing some fifty thousand tons of structural steel below the surface for the support of the proposed station building and adjacent streets. Skinner's address is 227 West Thirty-third Street, New York City. —The address of Walter I. Swanton is Sixth Floor, Munsey Building, Washington, D.C. Swanton is now construction engineer with the United States Reclamation Service.—Alfred C. Thomas, engineer with the New York & New Jersey Telephone Company, is located at 15 Dey Street, New York City.—The present address of Percy H. Thomas, chief electrician with the Cooper-Hewitt Electric Company, is 111 Broadway, New York City.—Augustus B. Wadsworth, M.D., formerly at 112 West Fifty-fifth Street, is now in practice at 180 West Fifty-ninth Street, New York City.—Parker H. Wilder, formerly secretary of the Choate School at Wallingford, Conn., is now treasurer of that institution.—The following '93 men attended the alumni dinner January 18: S. A. Breed, Blood, Dawes, Densmore, Ellms, Fay, Keyes, Pickert, and Tucker. Ellms, who is located at Cincinnati, arranged a vacation trip so as to be present at the dinner.

1894.

PROF. S. C. PRESCOTT, *Sec.*, Mass. Inst. of Technology, Boston.

C. F. Hopewell is at work on a new type of small gas engine for motor cars and similar purposes.—W. W. Patch is still engaged on the work of the Reclamation Service, and is now located at Orman, S. Dak.—George Taylor has become connected with the General Electric Company, and now lives at 13 Bedford Road, Schenectady,—J. E. Thropp, Jr., is in charge of the mines and smelters of the Everett Company, and is now located at Earlston, Pa.—A. W. Tidd was married during the summer, and now lives at White Plains, N.Y. Tidd has been for some time an assistant engineer on the new water supply work for the city of New York.—Mrs. De Lancey has removed from Great Barrington to Waterbury, Conn.—R. W. Gilkey has left Boston to accept a position in New York State. His address is 20 Lafayette Avenue, Kingston, N.Y.—J. W. Kittredge has opened an office in Boulder, Col.—C. F. Baker has joined the forces of the J. G. White Company in New York City.—W. H. King has recently taken possession of a splendidly equipped office in the new Hall of Records in New York City.—The secretary recently visited the Tech Club of New York, and happened to be present at the night for the reunion of '91, '92, '93, and '94. The occasion was a very pleasant one, as it gave opportunity to renew several old friendships. Of the class of '94, King, Locke, McJennett, N. E. Janvrin, and Prescott were present.—H. R. Bates is now located in Wilmington, N.C.—The secretary was pleased to receive a letter from R. H. Ober, who was connected with the class in the Freshman year. Ober is now engineer of the Columbia River Bridge for the C., M. & St. P. Ry. Co. of Washington, and his address is Trinidad, Wash.

1895.

H. K. BARROWS, *Sec.*, 6 Beacon St., Boston, Mass.

T. M. Lothrop's address is now 648 Fourth Avenue, Joliet, Ill. He is assistant superintendent of the spike and bolt factory, Joliet Works, of the Illinois Steel Company.—E. D. Barry has been also with the Illinois Steel Company, as assistant superintendent of their Cement Plant No. 2, but is now superintendent of the Universal Portland Cement Company at South Chicago, Ill.—S. H. Thorndike, who has been Instructor in Civil Engineering at the Massachusetts Institute of Technology for the last two years, is now in the bridge department in the office of the city engineer of Boston.—B. C. Donham is chief engineer for Collbran & Bostwick, general and railway contractors of Seoul, Korea. News comes of a daughter born November 13, and it is needless to say that "Ben" is proud and happy. Just now he is too busy to write,—building a water-works system for Seoul, among other things,—but the secretary hopes to have a "foreign letter" from him by our next issue.—C. F. Tillinghast, in his racing sloop, "Little Rhody," had a close call in a recent trip around Cape Cod, according to the Boston *Globe* of October 14. He left Marblehead with a party of four on October 5, and reached Bristol, R.I., on the 10th, having had to stop at Provincetown for over twenty-four hours during a hard gale. One of the party reported "that the 'Little Rhody' was the best sea boat he ever saw. Had it not been for her small cockpit, with a high sill to the cabin door to keep water from below, he believes the boat would have foundered in the terrific sea Sunday night, as the cockpit was full of water most of the time. All hands had life-belts strapped around them, and were wet through all night. It was a time of stress and anxiety, in weather that would have sent a less stanchly built boat to the bottom." The "Little Rhody" was built at Bristol, R.I., in 1904, from designs by George Owen. She won the race from New York to Marblehead that year, and has won several other long races.—

R. J. Williams is happy in the advent of "R. J., Jr.," born last July. Williams has been with Draper Brothers Company, woollen manufacturers, at Canton, Mass., since graduation. He married Miss Jeanette Wild, of Canton, Sept. 20, 1905.—H. M. Crane is now at 532 Fifth Avenue, New York.—E. C. Alden reports change of address to Hotel Lincoln, Columbus, Ohio, where he is engaged with the American Telegraph & Telephone Company.—A. D. Dean has been at 167 Tremont Street, Boston, since May 1; and the following, taken from *Two States*, indicates the larger field of usefulness to which he has been called:—

Mr. A. D. Dean, formerly assistant principal of the Springfield Technical High School, has been elected by the State Committee, Y. M. C. A., of Massachusetts and Rhode Island, as special supervisor of the educational department. This comes as the direct result of an effort of a few business men, who propose to largely back the educational work of the committee for a term of three years. It is the conviction of these men that furnishing evening instruction for industrial workers is the Association's opportunity to be of larger service to cities and towns which have neglected to provide for the vocational needs of men employed in our great manufacturing, as well as Association, centres.

Mr. Dean is well known as an expert on industrial education. After graduating from the Rindge Manual Training School, Cambridge, he entered the Massachusetts Institute of Technology, receiving his degree in 1895. His first work as a teacher was in manual training at Portland, Me. Later he organized and directed manual training in the Malden schools, and from there he was called to the Springfield Technical High School, with which he has been connected for eight years. Mr. Dean was associated with Dr. Balliet, former Superintendent of Schools in Springfield, and Mr. Warner, the present principal of the Technical High School, in organizing the Springfield Evening School of Trades, the work of which he has largely directed. He was sent by the United States government to investigate industrial conditions in Porto Rico, and for a number of years he has been an examiner for the International Committee. Mr. Dean begins work under the committee May 1, receiving leave of absence for part of July and August, to direct shop practice and manual training in Cornell University Summer School. The associations of Massachusetts and Rhode Island are very fortunate in being able

now to command the assistance of Mr. Dean in improving and enlarging their educational enterprises.

A. D. Fuller, as treasurer of the Andrew D. Fuller Company, of 3 Hamilton Place, Boston, is giving especial attention to foundation and substructure work, his firm being that of contractors and engineers. They also make a specialty of the entire development of country estates, and have done a large amount of this work for private parties here in New England, particularly along the North Shore in Massachusetts. They have an office at Greensboro, N.C., and work along the same general lines in that vicinity. The work that they have done in the line of concrete foundations, granolithic pavements, etc., is in many cases the first of its character in that part of the South.—G. E. Harkness was elected a member of the Boston Society of Civil Engineers on November 21. He has been in Boston and vicinity since graduation, with the city of Medford, Boston Transit Commission, Charlestown Bridge, and is now assistant engineer on the new Cambridge Bridge, at 185 Charles Street, Boston.—E. A. Tucker is at 683 Atlantic Avenue, Boston, and is engaged principally in the design of steel work for buildings, although he acts as consulting engineer on other general features of structural building work, foundations, etc. Reinforced concrete design has occupied his attention considerably during the past year or two, and he acts as New England representative for the Expanded Metal and Corrugated Bar System of St. Louis. Some of his recent work has been on the steel design and supervision of the car and locomotive repair shops of the Bangor & Aroostook Railroad at Milo Junction, Me; reinforced concrete design and supervision of construction of warehouse on Kneeland Street, for the Boston & Albany Railroad; consultation work on John Hancock Building and Weeks Building in Boston, and various other buildings and bridges. Tucker has just been elected a member of the American Society of Civil Engineers.—F. A. Bourne is also "doing things" in Boston and vicinity. His office has been in the Mason Building for about five years. One of his latest designs, that of St. Luke's Church on Washington Avenue, Chelsea, is attracting wide attention.

Bourne gave considerable study to the manner of the use of concrete for this structure, and it is reported by experts to be the best example anywhere about here of cast stonework. The result is superior in texture to the manufactured stone now being used in the new West Point buildings. The interior of the church shows the finished stone jointing, and the cast stone window tracery receives the leaded glass without surrounding woodwork. The floors are granolithic, and there is no plastering in the building. The effect is very dignified, and obtained at a very small expense compared with other methods of construction.—M. M. Cannon has just been made a member of the American Society of Civil Engineers. He is civil engineer for the Fore River Shipbuilding Company, and has had direct charge of all construction work connected with their great shipyard near Quincy, Mass. During the past year, in addition to this, he has designed and constructed the new terminal docks of the Atlanta, Birmingham & Atlantic Railway at Brunswick, Ga.—It is expected that the '95 class panels for Huntington Hall frieze, which the class authorized at the annual meeting, will be commenced shortly after the midyear vacation.

1896.

EDWARD S. MANSFIELD, *Sec.*, 70 State Street, Boston.

The decennial of the class of '96 has passed into history, and yet the catalogue has not made its appearance. This is not due to the lack of energy on the part of the committee, but to the lack of interest shown by many '96 men. The committee is anxious to produce a complete, first-class book, and it is not willing to go ahead with only half the information in hand. So wake up, men of '96! Take a little interest in the matter, and the committee will show you what can be done if all co-operate.—C. K. B. Nevin was married on Oct. 27, 1906, to Miss Mary E. Saltonstall, of New York.—On November 21 H. W. Brown lost his daughter Constance, and on December 25 Dorothy, his youngest daughter,

died.—Frank E. Guptill, formerly of the Mutual Assurance Society of Virginia, has been associated with J. G. White & Co. of New York since July, 1906. He has been spending about six weeks in and around Boston, visiting old acquaintances and friends, and early in February is to go to Olongapo in the Philippine Islands. At this place, which is near Manila, is to be located a United States Naval Station for coaling purposes, and for about eighteen months Guptill will be engaged in installing a centra station and erecting hoisting apparatus.—Leland has been ap pointed Assistant Professor of Naval Architecture at the Institute, and Locke has been made Assistant Professor of Mining, Engineering, and Metallurgy.—Albert A. Chittenden, an artist of New York, died in that city on Jan. 9, 1907.—Mrs. Marion L. Chamberlain has left the library at Columbia University, and is now located at the New York Society Library of New York City. —Willard H. Colman, formerly manager of the Ralston University of Expression at Washington, is now taking a course in the new science of chiropractic at the parent school at Davenport, Ia. His home address is 1319 State Street, La Crosse, Wis.— News from J. W. Clary, of Washington, D.C., states that he is married, and has a son four months old.—F. H. Smith has left the Fisk Rubber Company of Chicopee Falls, and is now connected with the Boston Woven Hose and Rubber Company of Cambridgeport. He is living in Cambridge.

1897.

JOHN A. COLLINS, JR., *Sec.*, 74 Saunders Street, Lawrence, Mass.

Carroll A. Capen (X.) was married on October 15 to Miss Lucy Chadsey Oliver, of Bath, Me.—Charles B. Breed (I.) and George L. Hosmer (I.) Instructors in Civil Engineering at the Institute, have recently issued a text-book, "The Principles and Practice of Surveying." The subject is treated quite exhaustively, the book having 526 pages and 192 cuts. It is published by John Wiley

& Son, New York.—The following sad news of W. H. Cutler's death has been reported, and a letter which appeared in the Kansas City *Star* (Jan. 10, 1907), written by his two associates, one of whom was a classmate of his at the Institute, is published below:—

FROM W. H. CUTLER'S ASSOCIATES.

To the Star:—

The death of Mr. William H. Cutler, junior partner of the firm of Howe, Hoit & Cutler, occurred on Monday morning last, after a brief illness of a little more than two weeks, and came as a shock to his friends, many of whom were not aware that he was ill. By this untimely shortening of his useful and promising career the profession of architecture has lost one who, had he been permitted to complete his natural allotment of years, would have made for himself a high and permanent place in it.

Mr. Cutler was thirty-two years and six months old, and was born in Cincinnati, but passed most of his life in Chicago, where he received his early training in the public schools and in the Chicago Manual Training School. Later he entered the Massachusetts Institute of Technology, where after a full four years' course in architecture he graduated with honors, and shortly after entered one of the larger Chicago offices. From this office he came to Kansas City in 1900, entering the office of Van Brunt & Howe. In 1903 he was admitted to the firm, succeeding to the business of Van Brunt & Howe, and, as a member of it, had practised his profession here up to the time of his death.

He was a brilliant draughtsman and colorist, thoroughly trained in construction and detail; and, although of a very quiet and retiring disposition, he made many warm friends, both in the profession and out of it. His tactfulness in handling men was remarkable; and, with his kindly way, he managed to secure results and at the same time win the respect and confidence of those with whom he came in contact.

Above all, his character, both public and private, was irreproachable, and his ideals of the highest. In his too brief career he made for himself many friends in and about Kansas City, and in the work of the office his personality has been of the most engaging kind. His employees miss him not merely as an employer, but as a friend; and many a young man, both in the office and out of it, owes to Mr. Cutler a debt of gratitude for his kindly help over hard places of architectural training. He was a well-known member of the Country Club and the University Club and a Scottish Rite Mason of the thirty-second degree. No one will miss him more or appreciate more

fully his sterling worth than do his business associates, and none will more sincerely mourn his loss. Mr. Cutler leaves a father and mother of advanced age, who live in Chicago, and two brothers.

FRANK M. HOWE.
HENRY F. HOLT.

1898.

PROF. C.-E. A. WINSLOW, *Sec.*, Hotel Oxford, Boston.

Sturtevant is spending a sabbatical year in studying at Harvard University. He writes to the secretary to announce the birth of a daughter, Constance, on November 27.—Chace has moved to Tucson as office engineer of the Gila Valley, Globe & Northern Railway Company. His address is Box 553, Tucson, Territory of Arizona.—Allyn has left Mitchell, Bartlett & Brownell, to open an office of his own, for the practice of patent, trade-mark, and copyright law, at the Broadway Chambers, 277 Broadway, New York.—Goodrich was married on October 20, at Stockbridge, Mass., to Miss Cora Edith Smith, daughter of Mr. and Mrs. John F. Smith.—C. W. Wilder has moved from 91 Pineapple Street to 394 East 21st Street, both of Brooklyn, N.Y.—Pen Dell has left the Western Electric Company to take a position with the North Shore Electric Company, with headquarters at the Chamber of Commerce, Chicago.—Hürter has taken a long jump from his last position in the field, which was at Orseco, Ore., to Wilmington, Del., where mail will reach him at Box 692.—Alexander sends a new address at Christ Church Rectory, Springfield, Mass.—Gilbert has moved from Pueblo, Col., to Durango in the same State. His address is 1404 Third Avenue.—New addresses have recently been received, as follows: Shaw is now at 32 Oakland Street, Newburyport, Mass.; Fearing, at Mt. Joy Place, New Rochelle, N.Y.; Ferguson, at 633 Law Building, Norfolk, Va.—Hubbard has just been transferred from West Hurley, N.Y., to Kingston, N.Y., where his address is 133 Fair Street. He is in the employ of the Board of Water Supply of New York, and has been doing notably able work, assisted by a number of younger

Tech men. At West Hurley he was assistant division engineer of the Eastern Division, in charge of the office. This last summer his work consisted in making an accurate topographical survey of the basin for the proposed additional water supply for the city, together with the work of relocating the Ulster & Delaware Railroad, which runs through the site of the proposed reservoir, and the estimates for the cost of building dikes, etc., in regard to their capacity.—Plans submitted by Pratt for a sewage disposal plant for the city of Washington, Pa., were adopted by the borough council without a dissenting vote. Bonds for $78,000 were authorized for the construction of the plant, and Pratt's plans met with much favor from the city authorities and from the press. They were approved by the State Board of Health without any suggestions whatever, being the first plans so unqualifiedly accepted by the board. Pratt's work as engineer of the State Board of Health of Ohio, which has general supervision of the water supplies and sewerage system of the State, is bringing that State well to the front in the provision of pure water and the treatment of sewage and industrial wastes. The engineering department of the Ohio Board of Health is, indeed, entirely made up of Tech men. Its force consists of Pratt, '98, chief engineer; Kimberly, '97, Burgess, '99, and Hansen, '03, assistant engineers; and Hinckley, '06, engineering assistant. In addition, the city of Columbus, the capital of Ohio, is undertaking at the present time extensive improvements in providing a pure water supply and in purifying the city sewage. This work for the city is being carried out almost entirely by Tech men. Gregory, '95, is engineer in charge, with Howe, '95, De Berard, '99, Pearse, '01, and Belcher, '03, assistant engineers.—Shute, '01, is with a firm of practising sanitary engineers located in Columbus. Technology may well be proud of the part she is playing in protecting the public health in this State.—Lansingh, besides filling his position as engineer and general manager of the Holophane Glass Company, sales department, has been reading numerous papers before engineering societies and contributing articles to the technical press. Among other papers recently given before the technical societies may be mentioned "The Engineering of Illumination

from the Gas Engineer's Standpoint" before the Western Gas Association at Cleveland in May, 1906; "The Standardization of Incandescent Gas Mantles" before the Gas Institute at Chicago, October, 1906; "The Engineering of Illumination from the Standpoint of the Acetylene Engineer" before the International Acetylene Association at Atlantic City in July; and "A New Method of Lighting the Streets of Los Angeles" before the Illuminating Engineering Society, in June, 1906, in conjunction with Mr. Western Underwood. Among articles in the technical press during the year may be mentioned "Calculation of Illumination" (the *Illuminating Engineer* for October) and articles, in conjunction with Mr. J. R. Cravath, on the question of lighting different classes of buildings, which have appeared monthly in the *Electrical World*. In addition to the above there will be issued about the first of the year a book entitled "Practical Illumination," by Mr. J. R. Cravath and V. R. Lansingh, which will cover the subject, not only from a theoretical, but also from an extremely practical standpoint. This book contains several hundred illustrations and practically all the reliable photometric curves which have been collected in this country. Lansingh is also treasurer of the Illuminating Engineering Society, which, although only formed last January, now numbers over 850 members, with branches in New York, Boston, Philadelphia, Pittsburg, and Chicago.—Packard, as a member of the firm of Burgess & Packard, has been very busy this year, building and repairing all kinds of yachts. Their 22-rater "Orestes" won a race in New York this fall from the best boats built in the last three years in New York, winning a $500 cup, besides the championship of Massachusetts Bay in this class, and by which she won a leg of the Lipton Cup. One of their most notable previous successes was the "Mercedes," a 32-foot racing motor-boat, built three years ago, which made 25 1-2 miles an hour, with a 60 H. P. gasolene engine. She has won championships of the Eastern Yacht Club for the last three seasons, and last winter beat boats from all over the country in Florida. She is easily the fastest boat of her size in this country. Lately Burgess & Packard have developed their yacht yard, and

built the 103-foot passenger steamer "Pineland," running on a regular route near New Orleans. She is one of the first, if not the first, large passenger steamer to be propelled by gasolene. She has a 300 H. P. motor, and develops a speed of 19 miles an hour, carrying 250 passengers. She is divided into a great many water-tight compartments, and is unique in several particulars. She made the run from Marblehead to New Orleans with an average consumption of 1 1-5 gallons of gasolene per mile. The fishing schooner "Elizabeth Silsbee," built at Essex, from Burgess & Packard's design, is the largest, fastest, and most powerful fishing schooner on the Atlantic coast. She carries a crew of 32 men, and in addition to her sails is propelled by a 300 H. P. gasolene engine, capable of driving her 12 miles an hour without sails. She is considered one of the best sea boats in the fishing fleet, and has made some remarkable trips. The new Boston Floating Hospital ship was completed at Packard's yard last August, and is the first completely equipped floating hospital for young children in existence. The ship consists of a steel hull, 175 feet long by 45 feet wide, on which is a wooden superstructure of four decks, containing wards that will accommodate 125 beds for the patients. The wards are cooled by an elaborate system of refrigeration. The upper deck is devoted to day patients. Very many interesting problems had to be solved to adapt a hospital to its marine environment.

1899.

HERVEY J. SKINNER, *Sec.*, 93 Broad Street, Boston.

Earle B. Phelps, chemist and bacteriologist of the Sanitary Research Laboratory of the Institute, is also connected with the Water Resources Branch of the United States Geological Survey. Phelps is in charge of all the work now being carried on by the government on stream pollution. At present he is making investigations on the pollution of Chesapeake Bay, and also of the Providence River. Besides these he is working on experiments

in connection with sewage disposal in New Jersey, and with the utilization and disposal of waste liquors from sulphite pulp mills. —Burt R. Rickards, director of the bacteriological laboratory of the Boston Board of Health, has recently returned from a three weeks' trip to Mexico, where he attended the convention of the American Public Health Association. Rickards was elected secretary of the laboratory section of the Association. While in Mexico, he visited the rabies plant of the Pasteur Institute, and also inspected the water supply system, besides making a side-trip to the disinfecting station at Vera Cruz.—The secretary was hospitably entertained at the home of W. M. Corse at Detroit for several days during the fall. Corse is assistant superintendent at the works of the Detroit Lubricator Company, and is in immediate charge of the brass foundry. Corse is one of the few chemists in the brass industry, and his efficient work is shown by various improvements which he has made in foundry practice.—Haven Sawyer has left Gazelle, Cal., and is now at Custer, Ida. Sawyer is engaged in mining engineering.—Frank J. Huse was married on November 20, 1906, to Annie Louise Manter at Farmington, Me. They will make their home at Evanston, Ill.

1900.

R. WASTCOAT, *Sec.*, Dedham, Mass.

Wanted.—Items of interest about members of the class of 1900. Any member hearing about anything happening to any classmate, either in the way of marriage, good fortune, or otherwise, will please send an account of the whole occurrence to the secretary, and receive a reward some time.—The secretary, coming down Dartmouth Street from the Back Bay Station the Saturday before Christmas, spied a short fellow looming up ahead, who looked like Bill Stone; and Bill it proved to be. Bill was on for the holiday, and is now with the Water Supply Department in connection with New York City. He is located at Cole's Spring, opposite West Point, has

taken in all the football games played by the Cadets, and says it is a fine country up that way. He was formerly with the State Highway Commission, and changed to the Water Supply Department last spring.—Suter, who has recently returned from the Philippines, is also connected with the same department, and is located in the office at 299 Broadway. We understand that Suter had a very exciting time out in the Philippines, and the secretary hopes to have for the next number a short account of his experiences while there. The Bolo men attacked the town once where Suter was located, and the sprinting abilities that he used to display while in college served him to good purpose.—Searle, who was recently with the New York Central, has also passed the examinations, and has been appointed an assistant engineer in the same department.—Leeds, who came back to Tech and graduated this past year in Course I., is now located down in New Mexico, overseeing some government construction work.—Redman is now at work in connection with the Pennsylvania Tunnel under New York, and has left the government service, where he was connected with the irrigation work out West.—Steve Brown is also located in New York, being connected with the construction of the tunnel under Manhattan.—Joe Draper (IX.), Campbell, '01, and Chalmers did some climbing over the White Mountains this fall, climbing Lafayette, Lincoln, and Liberty Mountains, and scaring all the animals in that region with Tech yells. They slept in the open a number of nights; and Draper says that, after Chalmers got enough blankets to completely cover him, there was very little left for the rest of them.—H. E. Ashley (X.) is now located at Newell, W. Va. His former address was East Liverpool, Ohio.—Edward E. Bugbee, who has been teaching in the Iowa State College, Ames, Ia., is now located at the University of Washington, Seattle, Wash.—R. S. Blair (VI.), practising patent law in New York City, is living at 259 Woodland Avenue, New Rochelle, N.Y.—Robert H. Clary (III.), formerly located at Los Angeles, Cal., is now in Rosario, Sinaloa, Mex.—Warren A. Edson (II.), formerly located with the American Steel and Wire Company, is now at 221 Stiles Street, Elizabeth, N.J.—W. F. Jackson has changed

his address from Philadelphia, Pa., to 95 Randolph Street, Chicago, Ill.—H. A. Macpherson (XIII.) has been transferred from the Chicago office of the Western Electric Company to their office at Philadelphia, Pa., corner 11th and York Streets.—A. G. A. Schmidt (II.), who was with the Long Arm System Company, Cleveland, Ohio, has changed his address to the "Windy City," 1153 Addison Street, Chicago, Ill.—A. B. Briggs (I.), connected with the Boston & Albany headquarters at the South Station, was married quietly this fall, and is living out at Wollaston.

1901.

R. H. STEARNS, *Sec.*, 15 Beacon Street, Boston.

The secretary regrets that the space devoted to class news should contain a lament, but wishes to inform the class on one matter. Since taking the office of secretary, no records, accounts, or class list, have been received. The retiring secretary is dead to the mails, and an offer to call on him in Pittsfield brought no response.—E. B. Belcher is doubtless the busiest man in the class. He is exhibiting this January at the New York Auto Show a high-grade 4-cylinder motor, built by the Berkshire Auto Company, which he manages.—Allan Winter Rowe has returned from Germany, and is teaching chemistry at the Harvard Medical School. When we recall how well Rowe could talk at class meetings, when he had nothing to say, we must be confident of his success as an instructor after his fine preparation.—Mr. G. V. Sammet (V.) was married on Oct. 23, 1906, to Miss Harriet Fairbrother, of Pawtucket, R.I., and is living in Dorchester.—Mr. Bart. E. Schlesinger (V.) is making a trip around the world for the Merrimac Chemical Company, going via Hawaii, Australia, etc.—W. W. Walcott (IX.) is now a practising physician in Natick, Mass., after a three years' apprenticeship in the hospitals.—F. G. Clapp (XII.) is now in Minnesota, looking into the water resources of that State.—Ex-President Lawrence reports himself a father to a boy, and we wish every good fortune to the

man who led our class so ably for so many years.—The secretary expects to put out a general circular soon, and hopes the men will get in closer touch with him, to the general advantage of all.—William Warren Garrett died at San Antonio, Tex., January 14. He was born in Kentville, N.S., twenty-nine years ago. He came with his parents to Cambridge at the age of seven, and was educated there, graduating from the Cambridge Latin School in 1897 and from the Institute of Technology in 1901. On finishing at Technology, went to Montana, where he worked for two years in the smelter of the Boston & Montana Copper Company. In 1904 he became instructor of mining engineering at Rolla College, Rolla, Mo., remaining two years. Last summer, while travelling in Mexico, he was offered a position as assistant superintendent of the American Smelting & Receiving Company in Aguascalientes, Mex., and took up his duties there last September. He was married Jan. 26, 1905, to Ida Stevens, of Cambridge.

1902.

F. H. Hunter, *Sec.*, 36 East 28th Street, New York City.

Two informal gatherings of the class have been held so far this winter, one in Boston on December 13, and one in New York on January 10. The meeting in Boston was held at the Tech Union, and was in charge of Assistant Secretary Nickerson, twenty-four men attending. After the dinner the evening was passed with stories and songs, and a general good time enjoyed. Those attending were E. S. Baker, Bates, Borden, C. H. Boardman, Jr., Collier, A. W. Crowell, Currey, H. H. Davis, Everett, S. A. Gardner, Jr., George, Hammond, Hooker, Lewis, Marvin, Nickerson, Patch, Ritchie, J. W. Smith, Stillings, Stover, Vaughan, Wemyss, Whittet. It is proposed to hold a theatre party later in the season. The gathering in New York was the first ever held outside of Boston, but from the interest of those present it will not be the last. The dinner was held at Mouquin's on Thurs-

day, January 10. Mr. John M. Bruce, vice-president of Tucker & Vinton, was the guest of the evening, and gave a very interesting talk on "The Business Side of Engineering." Although the short notice given prevented some men from attending, the evening was a highly successful one, and the cheers given, before the party broke up, for M. I. T. and for '02, closed the best dinner any class has ever held in New York City. Among those present were C. B. Allen, Annett, Brainerd, Franklin, A. E. Hemsen, Hunter, B. G. Philbrick, J. Philbrick, and Place.—H. H. Saylor was married on November 27 to Miss M. Helen Miller, of Philadelphia. They are living at the Palmer House, East Orange, N.J. Saylor left the *Architectural Review* some months ago, and is located with Doubleday, Page & Co., where he is conducting the architectural department of *Country Life*.—Farmer married Miss Capen, daughter of the late President Capen of Tufts College, in November. Mr. and Mrs. Farmer are living at 34 Rangeley Street, Winchester, Mass.—The second generation is on the increase, Albert E. Lombard, Jr., first seeing light on November 25. We trust that the family tradition will hold, and that about 1924 we shall read of his election as president of the Freshman Class at Tech.—C. B. Allen is also enrolled among our "proud and happy fathers," Miss Margaret Marie Allen having arrived safely on December 18. Allen is located with the Marine District, N.Y., N.H. & H. R.R., with headquarters at New Rochelle, N.Y. Address, 30 Colonial Place.—E. S. Baker is with the American Telephone & Telegraph Company, 125 Milk Street, Boston. His work takes him to many points in the West on conduit layouts, two of his recent trips having been to Idaho and St. Louis. —Hunter has left the Underwriters' Engineering & Construction Company.—Burdick's address is 3 Brownell Avenue, Hartford, Conn.—Matthies is manager at Berlin for Zwietusch & Co., the German representatives of the Western Electric Company. His address is Salzufer 7, Charlottenburg, Germany.—Seabury is with the Board of Water Supply, Brown's Station, N.Y.—A. E. Hansen is with Williams, Proctor & Potts, sanitary engineers, Room 1702, 17 Battery Place, New York City.—

Blodgett is with the McGraw Publishing Company of New York. His home address is 891 St. John's Place, Brooklyn.—H. E. Bartlett's address is 797 Prospect Place, Brooklyn.—B. G. and J. Philbrick are living at 119 Montague Street, Brooklyn.—F. B. Galaher is in Dallas, Tex., for a short stay.—Ames has moved to Dayton, Ohio, 490 Forest Avenue.—Childs is now located in Lee, Mass.—McCarthy is at Good Springs, Lincoln County, Nev. —Clifford B. Clapp is assistant librarian at Harvard College. He was married last fall, and is living at 951 Massachusetts Avenue, Cambridge.—Reynolds has moved to Waterbury, Conn., where he is located with the Bristol Company.—Currey has left the Draper Company, and is now located in Readville, Mass.—Pember has left Buffalo to take the position of chief architect with the South & Western Railroad, with headquarters at Johnson City, Tenn.—Miss Culver has become Mrs. Krueger, and is living at 18 Rugby Road, Schenectady, N.Y.—Curtiss is with the Juniata Hydro Electric Company, Perry Building, Philadelphia, Pa.—Archie Gardner is at Charleston, S.C. Address, care Carolina Yacht Club.—Geromanus is teaching the sciences in Malden (Mass.) High School.—MacNaughton's address is 309 Lumber Exchange Building, Portland, Ore.—Marsh is instructor at the Iowa State College, Ames, Ia.—The items in the October REVIEW concerning Professor W. H. Whitcomb and Herbert E. Raymond should have been under the class of 1903 instead of under 1902.

1903.

WALTER H. ADAMS, *Sec.*, Polytechnic Institute, Brooklyn, N.Y.

Since the first of the year two deaths have been recorded. On June 17 Manson died at Martinez, Ariz., after an operation for appendicitis. Although he graduated with 1904, he considered himself a member of 1903. As an undergraduate, he was prominent in athletics. After graduation he taught for a year at the Colorado School of Mines, and then went into practical work.

In the fall of 1905 he became mine foreman for the Rincon Mines Company at Martinez, and in the spring he was made superintendent. The following resolutions were sent to his parents:—

Whereas the hand of Divine Providence has taken from us one of our number, Gyula Bennett Manson, in whom we have lost a beloved friend and a faithful classmate, be it

Resolved, That we, the class of 1903, Massachusetts Institute of Technology, express deep sorrow at the loss we have sustained,—the loss of one who by his sincerity and kind-heartedness, as well as by his noble character and manly qualities, has endeared himself to all who knew him. That we desire to extend to his family our heartfelt sympathy in their bereavement. And also be it

Resolved, That a copy of these resolutions be sent to the family of the departed, that they be placed upon the records of the class of 1903, and that they be published in the TECHNOLOGY REVIEW.

(Signed) R. H. HOWES, *President*,
W. H. ADAMS, *Secretary*,
H. A. STILES,
K. W. ENDRES,
For the Class.

—On August 11 W. W. Burnham died at Wilmington, S.C., after two months' illness, of typhoid fever. As an undergraduate, he was prominent in class affairs. After graduation he was with the Massachusetts State Board of Health for a year. The next year he was with the United States Geological Survey on irrigation work. After that he was with Hugh McRae & Co., of Wilmington, and at his death was their chief engineer. He was married March 6, 1906, to Miss Ella Cate, of Malden, Mass. The following resolutions were sent to his wife—

Whereas the hand of Divine Providence has taken from us one of our number, William Winslow Burnham, in whom we have lost a beloved friend and a faithful classmate, be it

Resolved, That we, the class of 1903, Massachusetts Institute of Technology, express deep sorrow at the loss we have sustained,—the loss of one who, by his sincerity and kind-heartedness, as well as by his noble

character and manly qualities, has endeared himself to all who knew him. That we desire to extend to his family our heartfelt sympathy in their bereavement. And also be it

Resolved, That a copy of these resolutions be sent to the family of the departed, that they be placed upon the records of the class of 1903, and that they be published in the TECHNOLOGY REVIEW.

(Signed) R. H. HOWES, *President*,
W. H. ADAMS, *Secretary*,
E. E. LOCKRIDGE,
For the Class.

—A reunion was held in New York on November 30. Chase, H. Crosby, Howes, Joyce, and the secretary were present. Owing to the small number who attended, no speaker was provided; and we merely had dinner at the Hotel Roversi, and talked over old times. Three members of the class have gone into business for themselves. Aldrich is in the gas engine business, under the firm name of C. S. Aldrich & Co., with an office at 7 Commercial Wharf, Boston, Mass. They do a general business, selling engines, sundries, and repairs.—Bridges is a member of the firm of J. O. DeWolf & Co., mechanical, electrical, and mill engineers. Their office is 159 Devonshire Street, Boston, Mass.—Atwood is a member of the firm of Atwood & McManus, box manufacturers, in Chelsea, Mass.—Loughlin received his Ph.D. degree last June from Yale, and is now instructor in geology at M. I. T.—Tolman has been awarded a Dalton Fellowship, and is studying at the Institute for his Ph.D. degree. He has been granted $300 from the C. M. Warren Fund of the American Academy of Arts and Sciences, to enable him to construct what will probably be the most powerful centrifugal machine ever made for experimental purposes, to be used in connection with an investigation of the electromotive force produced at the two ends of a rapidly rotating solution of any ionized substance.—Newman's address is 175 Mt. Auburn Street, Cambridge, Mass. He is engineer with Ransome Smith Company, contractors, and is working on the United Shoe Machinery Company's plant at Beverly, Mass.—The following

changes of address have been received: C. H. Avery, 26 Chestnut Street, North Adams, Mass.; Chase, 45 West 128th Street, New York; Goodwin, 318 Dwight Building, Kansas City, Mo.; Hunter, 6354 Ellis Avenue, Chicago, Ill.; Pearson, 80 Willow Street, Brooklyn, N.Y.

1904.

CURRIER LANG, *Sec.*, Michigan Central Depot, Detroit, Mich.

During the past summer the class was honored in having the degree of Ph.D. conferred upon two of its members, and it is not too late even now to throw our chests a little further into the breeze on account of it.—Kalmus and Comstock, of Course VIII., who have been abroad studying on fellowships, captured the honors; Kalmus is back at Tech in the Research Laboratory, and Comstock is studying with J. J. Thompson at Cambridge University, England.—W. J. Gill is now in Boston with the American Telephone & Telegraph Company, in their electrical engineering department.—A. W. Bartlett is in Columbus, Ohio, as engineer for the American Water Softener Company (Brunn Löwener System).—In October the wedding of Merton L. Emerson to Miss Frances Dike took place at Christ's Church, Quincy, Mass. R. A. Wentworth and C. Lang of the class were present at the ceremony. The Episcopal service, with a surpliced choir, was used, and was very pretty. After a trip, Mr. and Mrs. Emerson returned to Braintree to keep house.—Preston M. Smith has lately moved to Detroit, to take a position with the Capitol Heater Company.

1905.

R. H. W. LORD, *Sec.*, 248 Tremont Street, Newton, Mass.

In the last number of the REVIEW we asked for opinions regarding the triennial scheme. We had one reply, and are much discouraged at the lack of interest in an event which is very impor-

tant to our class. The man who did write brought out a good point, that many of us have friends in other classes who would not be in Boston except in 1909, and, as a young engineer can rarely get off for more than two weeks in the year, he would think a long while before he used the week in the second year for a trip to Boston, were the two reunions held.—All the crowd has left the Lackawanna Company now, as retired steel magnates.—Coffin is now on insurance inspection in the Boston Bureau of Insurance Inspection.—Charlie Dean is in Pittsburg, representing the Buffalo Forge Company, and Jim Lambie is doing concrete work around Pittsburg.—Poole is with the Bryant Electric Company in Bridgeport.—Thomas and Darling are also in Bridgeport. They seem to think that it is quite a town.—Abbott was home for Christmas, and while here called on the vice-secretary. He is in Houghton, Mich., as engineer for one of the Stone & Webster companies, and says, as far as he can find out, Lummie has dropped out of existence.—Heine Lewis was in Boston at the same time from Toronto, where he is with the Giant Manufacturing Company, makers of paints, varnishes, etc.—Harrie Whitney has just returned from Cuba, where he was investigating a stone quarry, to be opened up for concrete works. He is now, as for the last two years, engineer of sewers for the city of Beverly, and has managed to spend $200,000 for them in the last eight months.—In June the plant of the Eastern Dynamite Company at Barksdale, Wis., blew up, killing the superintendent and two men. Dan Harrington and Elmer Wiggins came through unhurt. Every door and window within a radius of five miles was blown in, and it was a miracle that the loss of life was not greater.—The first meeting of the Boston 1905 Club was held on December 4. Seventeen men met for dinner at the Tech Club. After dinner each man told what he had done since leaving Tech, and ended in a spirited debate between Charlie Boggs and Pink Fisher on whether or not a man could make money and still be honest. The meetings will be held the second Tuesday in each month. Any one wishing to join will notify G. B. Perkins.—Following are some changes in addresses recently received by the secretary: R. W.

Senger, Cananea Club, Cananea, Senora, Mex.; George B. Jones, 1226 16th Street, N.W., Washington, D.C., assistant examiner, United States Patent Office.; F. P. Poole, 1465 Fairfield Avenue, Bridgeport, Conn.—The men in the Patent Office at Washington have the special lines, as follows: Ammen, steam engineering; Barrows, fire-proofing; Crosby, automatic tools; Guibord, lubricants; Gammons, pneumatics; Jones, electric lighting; Kenway, optics; Whitney, hoisting.—Blair is with Howson & Howson, patent attorneys.—Grove Marcy has left Buffalo, and is now back in Boston.—Dick Senger writes:—

If I were to tell you the history of my life since leaving Tech, I would still be writing this time to-morrow. So I will simply tell you something about life here. Cananea is very little different from any of the Southern Arizona camps. In fact, the country looks the same. There are, of course, more Mexicans and Chinese and fewer gringoes here than across the line in Arizona. Excluding the dogs and burros, there are twenty thousand inhabitants. Of these there are at least twenty-five hundred gringoes. The Mexicans and Chinks look to be about equally divided. The town and suburbs wander up hill, down gulch, for about nine miles. The architecture varies from thatched dug-outs to three-story brick company houses. Life here is no wilder than in the tamest parts of Colorado. Once in a while the Mexicans get knifing each other, or gringoes shoot rather promiscuously. The riots on June 1 might have happened anywhere. They certainly were exciting. The camp, strange as it may seem, was caught practically unprepared. Every available gun was put into the hands of Americans by company officials. We did all we could to assist the Mexican authorities, who were too weak at the time to handle the situation alone. For forty-eight hours we protected company property, and stood guard on the concentrated camps of American women and children. Not until the Mexican "rurales" and infantry arrived on the scene—two days after the first excitement—could we rest with ease. My military training in Tech aided me greatly in carrying a broken-down shot-gun, with one hammer gone and the other loose. If I had had occasion to fire, I think I would have suffered more than my opponent. I could have used my gun as a club, however. Several strange things happened during the riots. Two prominent Americans were most brutally murdered in defending company property. About twenty Mex-

icans were killed by a dozen gringoes during a clash, when about fifteen hundred Mexicans attempted to force their way where they were not wanted. Since the riots, Cananea has had an efficient garrison. Everything has been disgustingly orderly. Ladies' tea-fights and dances (full dress, if you please, and this in the "wilds of Mexico") continue in full force.

We have a fine club here, which would do justice to a place more highly civilized. This does much to keep fellows here.

My chief excitement, aside from horseback riding, is trying to talk graceful Spanish to some very good-looking señoritas. My breaks must be terrific, but they are too polite to show it. According to them (the national fault is to rave about every one), my accent is good and grammar perfect, while I am dead sure that the former is barbarous, and the latter not at all. The future tense insists on sliding in where others should be, etc.

Last Sunday, while out riding, I was gracefully pitched from my horse, and in falling received a thump from my horse's hoof in my left thigh. Most Mexicans would have stopped and apologized, but the Mexican horse ran down the road, and waited for me to hop after him.

This is enough foolishness. It seems like several geological epochs since I have seen the fellows.

—The following is from G. B. Jones:—

In reply to yorz, asking for your attenshun to the fact that, being now an employee of Unkle Sam, I am expected to use simplifyd speling. The M. I. T. has a larg and very actif representashun in Washington.

The society holds semi-monthly informal dinners at the University Club, therby keeping well in tuch with each other and with the Institute. The report of the secretary for the year just past shoz an average attendanc at thez dinners of nine. On Wednesday, December 12, waz held the annual dinner of the society, at which about forty men turnd up.

Professor R. S. Woodward, president of the Carnegie Institushun, spok of the increasing importance of applied science in the general field of educashun, and was given a very cordial welkum. He was to have been folowd by Mr. J. Knox Taylor, '79, Supervising Arkitekt of the Treasury Department, who waz unfortunately called out of the city at the last minet.

Accordingly, Professor Woodward waz folowd by Mr. Dougherty, '97, who referd to the varius posishuns of eminence and responsibility held by Tek men thruout the country.

Professor S. H. Woodbridge of the Fakulty folowd with a very inter-

esting diskushun of the present situashun and needs of the Institute; and thruout his addres of over an hour he waz folowd with the closest attenshun. He, in turn, was folowd by Dr. Pressey, '96, who spok brefly in favor of a broader training for Tek men, and at the conclushun of whos words the meeting waz adjurnd. Yorz, G. B. Jonz.

—Arthur J. Manson writes:—

At last I can give you some news. As you wrote, our apprentice course is nearly ended, and we will soon begin to split up. Already two have left, Atwood and Winship. Atwood has taken a position in Chili with Mr. J. K. Robinson, of New York, who is the South American representative of the Westinghouse Electric Company and also agent for other leading manufacturing concerns. He sailed from New York for Iquique on October 31. J. K. Robinson has been, and is, building small power plants in Chili for the mining of nitre, which is the sole product of the northern part of Chili. These plants are owned by Englishmen. Atwood's first duty is to go from one plant to another, and give each a thorough inspection and make what repairs are needed. While at a power plant, he will live with the owner. This inspection will last a few months, and then he will start on construction work. Winship took a position with the Westinghouse Electric Company in the railway office, beginning November 1. The latter part of the month he was sent to Long Island to be present during a test which the Pennsylvania Railroad is making on one of their electric locomotives built by the Electric Company. From Long Island he will go to New York to help on the electrification of the New York, New Haven & Hartford Railroad.

—George I. Rhodes writes:—

I dropped in to see "Bush" White the other day, and found him almost buried in coal dust. He is working for a consulting engineer, C. B. Jacobs, and has full charge of the laboratory. He seems quite satisfied with the job, and he says that his work is quite varied. At present he is working on a scheme to extract an excess of sulphur from coal. A few days later I dropped in to see Frank Payne at the Otis Elevator Company. He likes his job pretty well, but is anxious to get out of New York. Carl Graesser is working for a jewelry manufacturing concern in Wallingford, Conn., and likes his job very much. Schmeisser has left New

York for a pleasure trip to Europe for the summer. He expects to visit quite a number of works of engineering interest.

I have no more news about '05 men, but Ayer, '04, has gone to work for the government at the Charleston (S.C.) Navy Yard. I have no particulars as to the nature of the work, except that the government contemplates installing a modern high-tension system there, and that Ayer is connected with the work in some way. I have heard from Damon once, but he was not settled then.

I have moved more than once since I came to New York, and now I am living with Mr. Ricker, the electrical superintendent of our company, and Mr. Armstrong, who has charge of the transmission department of the New York Central. A portion of the time there will also be a general electric engineer, who has charge of their experimental track at Schenectady. You see that I ought to have a good chance to gather a few points by having such close contact with engineers of considerable experience. This arrangement is only for the summer, while Mr. Ricker's wife is away; and in the fall I expect to move again, and, if everything goes well, I shall probably live with Whitaker and a couple more men, if we can get them.

A bunch of '06 men have come to New York, and had sense enough to get together beforehand and decide to live together. I haven't been to see them yet, but I expect to do so some time this week.— (Dec. 16, 1906.) Since I wrote you last, I have been doing lots of moving. I have changed my room several times for all kinds of reasons, and I can tell you it was a mean life to lead. I felt dissatisfied with everything from myself up. About a month ago, however, I had the chance to come into the Tech Club to live, and I did so. I have been mighty glad of it ever since, for I feel now that I am at last living. I have for a room-mate Barlow, '05, who is one of the engineers on this new water supply scheme for New York. Barlow likes his work very much, for a large part of it is study and design.

We had a very successful smoker here at the club last night. There were about thirty men to dinner, and quite as many more to the smoker proper. Professor Richards, of Columbia, Tech, '85, gave us a very interesting illustrated talk on "Art and Industry in the Orient." Three or four other men spoke on various matters pertaining to the club. After the speaking, the crowd gathered about the piano and sang Tech songs until a late hour.

Among those present was Professor Prescott, of Tech. There were a

few '05 men present. Jimmy DeMallie was here, feeling just about as usual. Married life appears not to have changed him much. Jack Dunn was also here. As I told you, he had to leave New York for the summer on account of his health, but is now back at the old stand with Westinghouse, Church, Kerr & Co., looking about the same as usual. William N. Turner was here. He spent the summer building a railroad somewhere down in Virginia, and came back to New York in the fall, wearing a "beaut" of a mustache and a skin about the color of a negro's. Three months in New York, however, have caused him to lose both his color and his mustache. He is now working for the New York Edison Company as a structural draughtsman.

Besides Barlow and me, there were no other '05 men present, although Gerry and Parker, who are working on an experimental tunnel for the Pennsylvania Railroad, said they were coming. I did manage, however, to get word of a couple more fellows. Klahr, who used Charlie Cross's private staircase, had to leave New York awhile ago on account of serious illness, and enter a sanatorium somewhere up State. He was doing very well with Westinghouse, Church, Kerr & Co.; and it is a shame that he should have to leave. Schmeisser is back in New York after a summer in Europe, working for George Ginns, consulting engineer, in the Maritime Building, 12 Bridge Street. I have not seen him yet, but I have no doubt that he enjoyed his trip to Europe very much. Bushnell is in New York now, but have not seen him yet. I don't know where to find him, or I would have tried to get him out last night to the smoker. I saw Charlie Mayer at the club a couple of weeks ago, but he didn't have much news. Of the other fellows in New York I have neither seen nor heard anything for so long that I have completely lost track of them.

I have not changed my job yet, although I have been at times sorely tempted to do so. I probably will not change just yet awhile, for I have a couple of very interesting jobs on hand, which will take me some time to complete, and which I am anxious to do. Just now I am trying to make an electrotype survey of a portion of New York fed by our lines.

By the way, there is one '05 man in New York whom I completely overlooked when I began to write. That is Chesterman. He has been down here for a couple of months, and will probably be here until January. He is doing some special work in telephony, and is working pretty hard. He was sick, or he would have been present at the smoker. He has been living out in Montclair, N.J., with Whitaker, '04, so I haven't seen much of him.

—From Perk we have:—

In connection with the work for the Boston Club, I heard from N. A. Richards, '05. He has been in the Boston office of Purdy & Henderson, architects, but has recently been transferred to the New York office of the same firm; and his address is now 78 Fifth Avenue, New York City.

Daniel P. Pousland, ex-'05, is on installation and inspection work for the Lowell Electric Light Corporation, a Stone & Webster plant.

Alden Merrill is a chemist for the Coe Brass Company in Torrington, Conn. Alden's address is 74 Litchfield Street, Torrington, Conn.

—Henry Hoffman Kennedy, '05 (IV.), writes me as follows:—

I am now located in Philadelphia, in the office of John P. B. Sinkler, and am getting on very well, on the whole, I think. My visions of fame and fortune have lost some of their gay tints they had while at Tech, but I have no cause to grumble at real life. I find Philadelphia also very pleasant; that is, the life, not the climate.

Kennedy's address is 322 South 11th Street, Philadelphia.—Bill Tufts writes:—

John Ayer (I.) is still in Germany. Address, 30 Ausbergerstrasse, Berlin W. He says that, if the language was as easy to master as the beer, we would all be Dutch. J. E. Barlow (I.) has left the Charles River Basin Commission. He took a recent exam. for position of assistant engineer with the Board of Water Supply, New York. Came fourth out of 150 men. He is now in the New York office. R. Kibbey (III.) has left his first love, mining, and taken up architecture. Is now of the class of 1909. Address, 285 Newbury Street, Boston. L. J. Killion (I.) left L. F. Shoemaker & Co. this fall, and is now with H. P. Converse & Co., 120 Milk Street, Boston. H. M. Lynde (I.) is with Factory Mutual Fire Insurance Companies, inspection department, Boston. He graduated last year from Brooklyn Polytechnic. J. H. McManus (XI.) is with the Board of Water Supply, New York, and is stationed at West Hurley, N.Y. He had temporary position with the board last summer. O. Q. Merrill (I.) blew in here this fall on the way to his home in Maine. Left his position with the University of California, and is now with the Southern Pacific as hydro-electrical engineer. His principal work now is investigating power-plant sites. S. P. intends to electrify the feeders to the main line, and perhaps

some of the mountain divisions. Merrill was in the "quake." The following will explain itself: Altoona, Pa., Nov. 29, 1906 Miss Jessie Ethel Rudisill was married to Mr. H. C. Mitchell (I.), a promising young graduate of Massachusetts Institute of Technology. Mitch. had good cause to give thanks that day. He dropped in to-day, and is looking fine. Mitchell has been running a preliminary reconnaissance for a railroad in Ontario. It is to run toward Hudson Bay. Says that there has been but one white man over the ground before them, and he was lost. Mitchell is going to spend his honeymoon in West Buxton, Me., working for J. W. White & Co. on an hydro-electric power plant. D. H. Nicholson (I.) married November 7 to Carrie May Cox at Roxbury, Mass. He is still with Charles River Basin Commission. W. S. Richmond (I.) was at the "'Stute" last spring for about two months as assistant in civil engineering department. He left in the summer to go with the United States Engineer on lake survey. L. E. Robbe (I.) is now with the Pennsylvania Tunnels in New York. Address, 343 East 33d Street, New York. Says he met L. H. Parker (I.) and Gerry (II.) in the tunnel. H. R. Robbins (I.) is returning from Manchuria by way of Suez Canal. His father was in here the other day, and said that Robbins had been all over Manchuria, was shot at by the Russians, and had many adventures. F. E. Kingsman (I.) is with the Reclamation Service on the Uncompaghre project, River Portal, Col. W. E. Simpson (I.) is civil engineer for an architect in San Antonia, Tex. W. Tufts is running an information bureau at Room 42, Engineering A. Small notes gratefully received, larger in proportion. R. E. Wise (I.) was working on the State line for the Harbor and Land Commission, when he fell into a ravine. Was laid up month with a bad foot. Is now with the Charles River Basin Commission. Mitchell told me he got a strike from you for a dollar. But was three weeks from civilization, so he did not send it. I saw R. N. Turner the other day. He is at Boston University Law School. Likes it all right.

—From the '05 Quakers we have:—

Tuesday before Thanksgiving Billy Keen entertained the '05 Quakers and also all the '06 men whose addresses in Philadelphia were given in the REVIEW. Seven '05 men and six '06 men were present, and we had a rousing good time, ending the evening by a corking spread. Billy has thoroughly established his reputation as an entertainer, and we were all sorry when the time to break up came. During the evening a commit-

tee was appointed to make arrangements for a joint '05 and '06 dinner during January, and I may add that the arrangements are progressing satisfactorily. Congratulations are in order. On the 12th of December the engagement was announced of William H. Keen to Miss Annie M. Sargeant, both of Malden, Mass. Hooray for Billy! Sid Cole has secured leave of absence from his company for several weeks, during which time he is going to see how he likes the gas business in Waukegan, Ill. However, I fear the leave of absence will be a permanent one, for I doubt if he ever returns, worse luck. Joe Brown, who is with the New York office of the Sullivan Machine Company, has been in the city several times, and has passed a couple of evenings with us. In fact, he was one of the '05 men present at Billy's the other evening. Killion, who was sent to Washington, D.C., by his firm, returned to this city for a short time, and then left to accept a position in Boston. We shall miss our musician. Cole, Eickler, and Bill Gerry will all be in or around Boston for the Christmas holidays.

1906.

THOMAS L. HINCKLEY, *Sec.*, 745 Osceola Ave., St. Paul, Minn.
A. T. HEYWOOD, *Resident Sec.*, Mass. Inst. of Technology, Boston.

Since the last issue of the REVIEW, the address and occupation of a large additional quota of members has been determined:—

John W. Anderson (II.), P.O. Box 806, Sparrows Point, Md., in the marine department of the Maryland Steel Company.

Lyman Anson (XIII.), 33 St. James Avenue, Boston, Mass., with Submarine Signal Company.

Herbert S. Bailey (V.), Box 102, Agricultural College, Mich., instructor in chemistry at Michigan Agricultural College.

Edwin B. Bartlett (VI.), 4926 Linden Avenue, Norwood, Ohio, apprentice course of Bullock Electric Manufacturing Company, Cincinnati, Ohio.

Andrew L. Bell (XIII.), care Superintendent, Motive Power and Machinery, Culebra, Canal Zone, Panama.

Stuart W. Benson (X.), 46 Chestnut Avenue, Trenton N.J., draughtsman, Trenton Iron Company, The Industrial Laboratories.

Fred H. Bentley (II.), 32 South Second Street, Elizabeth, N.J., inspector of contract work for refinery of the United States Metals Refining Company, Chrome, N.J.

Howard C. Blake (I.) is reported to have gone to San Francisco, to return later. Mail address, 184 West Canton Street, Boston, Mass.

Mildred E. Blodgett (XII.), 9 Batavia Street, Boston, Mass., student, M. I. T. XII.

Robert H. Booth (II.), Linwood Station, Pa., equipment man, American Telephone & Telegraph Company, Philadelphia, Pa.

A. L. Boynton (II.), of 88 Chatham Street, Worcester, Mass., is with the American Steel & Wire Company.

Howard Hayes Brown (XIII.) in the autumn was at 3436 Forbes Street, Pittsburg, Pa., learning the practical side of boiler-making from work in shops of R. Munroe & Sons, West Point Boiler Works, Pittsburg. He was previously with the Lake Erie Boiler Works, Buffalo, N.Y., and in October became editor of *The Boiler Maker* (formerly *Motive Power*), which is published monthly at 17 Battery Place, New York City. His present mail address is Penacook, N.H. We have heard he was reporting a boiler-makers' convention in Pittsburg.

Walter Stanley Brown (III.), 417 Boston Building, Denver, Col., of Wiard & Brown, mining engineers.

James M. Buchanan (III.), 208 West 82d Street, New York, N.Y., engineering department, New York & New Jersey Tel. Company, New York City.

George H. Buckingham (IV.), 138 Newbury Street, Boston, Mass., graduate student at M. I. T.

Harry W. Buker (III.) reported to have come East from Montana.

George W. Burpee (I.), P.O. Box 476, Louisville, Ky., draughtsman in civil engineering department, L. & N. R.R. Chief engineer's office, L. & N. R.R., Louisville, Ky.

William J. Cady (VI.), 435 Greenwood Avenue, Richmond Hill, Long Island, N.Y., with Holophane Glass Company, 15 E. 32d Street, New York, N.Y.

Louis R. Chadwick (XIII.), 9 Green Street, Claremont, N.H., with Sullivan Machinery Company, Claremont, N.H.

Edward Chandler (XIII.), 43 Mill Street, Grand Rapids, Mich., erecting superintendent for A. S. Nichols & Co., lumber and veneer dryers, 909 Tremont Building, Boston, Mass.

Arthur N. Cheney (II.), 7650 Bond Avenue, South Chicago, Ill., with steam engineering department of Illinois Steel Company's "South Works," South Chicago, Ill.

Avedis Melkon Chuchian (I.), 82 Fifth Street, Chelsea, Mass., student at M. I. T.

Walter B. Clifford (II.), 94 Sumner Street, Fitchburg, Mass., manufacturing, Simonds Manufacturing Company, Fitchburg, Mass.

Paul N. Critchlow (I.), care American Bridge Company, Ambridge, Pa., draughtsman with American Bridge Company, Ambridge, Pa.

John P. Davis (Sp.), 35 Huntington Street, Lowell, Mass., salesman with Gardner & Co., cotton goods converters, 95 Bedford Street, Boston, Mass.

William J. Deavitt (III.), care Canadian Copper Company, Crean Hill Mines, Ont., Canada, with Canadian Copper Company.

Colby Dill (X.), 460 Commonwealth Avenue, Newton Centre, Mass., student.

Theodore Dissel (II.), 701 James Street, Syracuse, N.Y., draughtsman, Consolidated Car Heating Company, Albany, N.Y.

Thomas F. Dorsey (I.), M. I. T., student, Course I.

William F. Englis (XIII.), 327 West 86th Street, New York, N.Y., with W. & A. Fletcher Company, Hoboken, N.J.

Thomas W. Faber (II.), 49 Carson Avenue, Newburg, N.Y., draughtsman, Gregg Company, Limited, Newburg, N.Y.

William F. Farley (I.), Lincoln Street, Waltham, Mass., with the Amboursen Hydraulic Construction Company, 176 Federal Street, Boston, Mass.

Robert D. Farrington (I.), Bellevue Street, West Roxbury, Mass., student, Harvard Law School, Cambridge, Mass.

Arthur E. Feeley (II.), Pittsfield, Mass., banker, Third National Bank.

Andrew Fisher, Jr. (X.), 180 East River Street, Hyde Park, Mass., salesman with A. Klipstein & Co., dyestuffs and chemicals, 283–285 Congress Street, Boston, Mass.

Harry A. Frame (III.), M. I. T., Boston, Mass., student (III.), '07.

Frank W. Friend (IV.), M. I. T., Boston, Mass., student, IV., '07.

Herman T. Gammons (II.), United States Patent Office, Washington, D.C., assistant examiner United States Patent Office, Washington, D.C.

Robert S. Gardner (XIII.), Technology Club, Boston, Mass., in turbine testing department of General Electric Company, West Lynn, Mass.

Samuel E. Gideon (IV.), M. I. T., Boston, Mass., instructor in drawing, M. I. T.

James N. Gladding (II.), 606 John Street, Albuquerque, N.Mex., city engineer of Albuquerque, N.Mex.

Samuel A. Greeley (XI.), care Hering & Fuller, 170 Broadway, New York, N.Y., assistant engineer with Rudolph Hering & George W. Fuller, 170 Broadway, New York, N.Y.

Edward C. Groesbeck (V.), 528 West 124th Street, New York, N.Y., private assistant to Professor Henry M. Howe of Department of Metallurgy, Columbia University, 27 West 73d Street, New York, N.Y.

Birendra C. Gupta (VI.), 203 West Newton Street, Boston, Mass., student at M. I. T. (VI.).

Richard F. Hammatt (VII.), Forest Service, Washington, D.C., forest assistant, United States Forest Service, now on Cascade Forest Reserve, headquarters, Roseburg, Ore.

William A. Hardy (II.), Room 322, United States Patent Office, Washington, D.C., assistant examiner, United States Patent Office.

Charles W. Hawkes (II.), 15 Euclid Street, Dorchester, Mass., with New England Telephone & Telegraph Company, 101 Milk Street, Boston, Mass.

Alfred R. Heckman (V.), Lake City, Col., assayer.

Herman C. Henrici (II.), 1013 Park Avenue, Kansas City, Mo., assistant construction engineer, Missouri & Kansas Telephone Company, Kansas City, Mo.

Royal R. Heuter (II.), Prairie Avenue, Auburndale, Mass., assistant in mechanical engineering at the Institute.

Guy Hill (VIII.), 41 High Street, Everett, Mass., experimental engineer National Electric Signalling Company, Brant Rock, Mass.

Harold G. Hixon (III.), Y. M. C. A. Building, Iola, Kan., chemist with United Zinc and Chemical Company, Iola, Kan.

George F. Hobson (XI.), 125 East 28th Street, New York, N.Y., with P., N.Y. & L.I. R.R. Company (East River Division), engineers' office, Front Street, Long Island City.

Herbert P. Hollnagel (VIII.), 186 Hamilton Street, Dorchester, Mass., assistant in electro-chemistry, M. I. T., Boston.

Helen R. Hosmer (V.), 1716 Union Street, Schenectady, N.Y., chemist, research laboratory, General Electric Company, Schenectady, N.Y.

Charles E. Hovey, 84 State Street, Portsmouth, N.H., midshipman, United States Navy.

Charles M. Hutchins (III.), 232 West Newton Street, Boston, Mass., student at M. I. T. in Course III.

Frank R. Ingalsbe (III.), Lehigh University, South Bethlehem, Pa., instructor in Department of Geology, Lehigh University, South Bethlehem, Pa.

Hans O. C. Isenberg (II.), Technische Hochschule, Charlottenburg, Germany, studying gas engines.

Ralph T. C. Jackson (IV.), 57 Oak Square Avenue, Brighton, Mass., graduate student, M. I. T.

Gilman B. Joslin (XIII.), 46 Burroughs Street, Jamaica Plain, Mass., heating engineering with James Tucker & Sons Company, 97 High Street, Boston, Mass.

Rinker Kibbey (III.), M. I. T., Boston, Mass., has been travelling in the West, visiting and working in various mining districts, now returned to M. I. T. to study in Course IV.

William J. Knapp (II.) is reported with Westinghouse Electric & Manufacturing Company, Pittsburg, Pa.

Edmund K. Lawrence (I.), 242 Newbury Street, Boston, Mass., student, M. I. T.

Hunter U. Light (II.), 40 West 30th Street, Bayonne, N.J., one of assistant engineers in mechanical department of M. H. Treadwell & Co., 95–97 Liberty Street, New York, N.Y., contracting engineers.

Fred C. Lutze (IV.), 14 Chelsea Street, East Boston, Mass., architectural draughtsman with A. H. Gould, architect, 17 Milk Street, Boston, Mass.

Elmer D. McCain (I.), Union Bank Building, Winnipeg, Canada, on

reinforced concrete construction, with George H. Archibald & Co., engineers and contractors, Winnipeg, Canada.

John H. McManus (XI.), assistant engineer, New York Board of Water Supply.

Albert P. Mansfield (IV.), Wakefield, Mass., was with Ransome & Smith, 11 Broadway, New York City, until September, 1906, when he entered M. I. T., '07.

Anthony P. Mathesius (XIII.), 237 Beacon Street, Boston, Mass., student at M. I. T.

William E. H. Mathison (X. and III.), 105 North Pennsylvania Avenue, Webb City, Mo., employed by "Chapman & Lennan," who are mine operators in Webb City, Mo.

Edward L. Mayberry (IV.), 1054 East Ocean Avenue, Long Beach, Cal., architectural engineer, 727 H. W. Hellman Building, Los Angeles, Cal.

Henry S. Mears (III.), Bisbee, Ariz., miner, Bisbee, Ariz.

Alden Merrill (IV.), 74 Litchfield Street, Torrington, Conn., assistant chemist, Coe Brass Manufacturing Company, Torrington, Conn.

John E. L. Monaghan (I.), 319 Fourth Street, South Boston, Mass., civil engineer, now located at 30 Tremont Street, Boston, Mass.

Walter N. Munroe (VI.), with Dallas Electric Lighting & Power Company, engineering department, 358 Commerce Street, Dallas, Tex.

Floyd A. Naramore (XIII.), 39 St. Botolph Street, Boston, Mass., student, M. I. T., in Course IV. Naramore is president of the Architectural Society.

Arthur Neale (V.), M. I. T., Boston, Mass., assistant, Laboratory of Technical Analysis, M. I. T.

William Neilson (III.), Oasis, Mono County, Cal., assayer, "Lookout Mine," which is located in Esmeralda County, Nevada.

Henry H. Nelson, Jr. (II.), 16 Myrtle Street, Jamaica Plain, Mass., heating and ventilating draughtsman with French & Hubbard, New Albany Bldg., Beach Street, Boston, Mass.

James B. L. Orme (V.), 18 St. James Avenue, Boston, Mass., chemist with R. S. Weston, sanitary engineer, 14 Beacon Street, Boston, Mass.

Louie A. Parker (IV.), 1255 West 6th Street, Los Angeles, Cal., chief engineer for Charles F. Whittlesey & Co., architects, Los Angeles.

Galt F. Parsons (VI.), in office of the manager Terre Haute Traction & Light Company, Terre Haute, Ind.

Ralph R. Patch (XI.), 28 Lincoln Street, Stoneham, Mass., with State Board of Health until November 1; now assistant superintendent, E. L. Patch Company, manufacturing chemists and pharmacists, Stoneham, Mass.

Jane B. Patten (VII.), 100 Gainsborough Street, Boston, Mass., instructor in biology, Simmons College, Boston, Mass.

Henry R. Patterson (II.), 8 Montrose Street, Roxbury, Mass., assistant in mechanical engineering, M. I. T.

Park V. Perkins, 52 Broadway, New York, N.Y., mining broker, operating in Southern Nevada.

Herbert S. Philbrick (II.), Waterville, Me., draughtsman with Lombard Log Hauler Company, Waterville, Me.

Burnell Poole (VI.), The Arlington, Montague Street, New York, N.Y., engineer with the New York Telephone Company, 15 Dey Street, New York, N.Y.

Willis Ranney (I.), Technology Chambers, Boston, Mass., student, M. I. T.

Edward M. Read, Jr. (I.), 4811 Regent Street, Philadelphia, Pa., res. engineer on construction for the John N. Allison Company, 1628 Land Title Building, Philadelphia, Pa.

James Reed, Jr. (XIII.), 311 Beacon Street, Boston, Mass., graduate XIII.A.

Atwood E. Rippey (III.), care C. H. Rippey, Conrad Building, San Diego, Cal., gem mining, San Diego, Cal.

Henry E. K. Ruppel (V.), chemist with Gillette Safety Razor Company, First and Colton Street, Boston, Mass.

Philip B. Sadtler (X.), Mechanicsville, N.Y., chemical engineer, West Virginia Pulp & Paper Company, Mechanicsville, N.Y.

Charles Saville (XI.), Room 140, State House, Boston, Mass., sanitary engineer, assistant in the engineering department, Massachusetts State Board of Health.

Paul S. Schmidt (II.), Allendale Terrace, East Cleveland, Ohio, civil engineer with the Courtney Engineering Company, 406 American Trust Building, Cleveland, Ohio.

Samuel Seaver (XIII.), 262 Franklin Street, Cambridge, Mass., with New England Telephone & Telegraph Company, 101 Milk Street, Boston, Mass.

Ephraim F. Searle, 109 May Street, Lawrence, Mass., inside electric wiring.

Howard P. Shaw (I.), Buckfield, Me., merchant.

Andrew B. Sherman, Jr. (VI.), Technology Chambers, Boston, Mass., engineering department, American Telephone & Telegraph Company, 125 Milk Street, Boston, Mass.

Arthur L. Sherman (I.), 4 Grand Street, White Plains, N.Y., assistant engineer, Board of Water Supply of City of New York, 4 Grand Street, White Plains, N.Y.

George R. Shingler, Jr. (V.), Emory College, Oxford, Ga., professor of chemistry.

Le Roy H. Shipman (X.), Box 1210, Berlin, N.H., assistant chemist, Burgess Sulphite Fibre Company, Berlin, N.H.

Ernest M. Smith (II.), mechanical engineer with Solvay Process Company, Syracuse, N.Y.

Carleton M. Soule (VI.), Hanover, N.H., graduated from Dartmouth College, '06, now student at Thayer School of Civil Engineering.

Percy Staples (I.), 215 Newbury Street, Boston, Mass., with Stone & Webster, Boston, Mass.

Edward T. Steel (VI.), in Lighting Department, Ponce Railway & Light Company, Ponce, Porto Rico.

Edgar C. Steinharter (VII.), Technology Chambers, Boston, Mass., student, Harvard Medical School.

Robert K. Stoddard (VI.), North Hanover, Mass., in electrical engineering department, Boston Elevated Railway.

Harold W. Streeter (XI.), 150 West Newton Street, Boston, Mass., student, Course XI., M. I. T.

Herbert A. Terrell (II.), 14 Lowell Avenue, Newtonville, Mass., with Vacuum Process Co., 15 State Street, Boston, Mass.

Maurice C. Thompkins (I.), 336 Monadnock Building, Chicago, Ill., with William B. Hough Company.

Lambert Thorp (V.), 512 Prospect Place, Avondale (Cincinnati), Ohio, assistant in chemistry, Case School of Applied Science, Cleveland, Ohio.

William F. Turnbull (II.), 35 Rutland Square, Boston, Mass., student, M. I. T.

Jean P. Varian (III.), 253 Lincoln Avenue, Denver, Col.

Ishwar Das Varshnei, Sikandra Rau, District Aligarh, U. P., India, consulting chemist and engineer. Has established a glass factory at Aligarh, India, and is operating successfully.

Ernest A. Walter (IV.), 92 Gainsborough Street, Boston, Mass., graduate student, Course IV., M. I. T.

Samuel L. Ware (XIII.), 103 Thurston Street, Somerville, Mass., in structural department with H. P. Converse & Co., 120 Milk Street, Boston, Mass.

Clarke E. Warren (II.), 803 College Avenue, Beloit, Wis., with Fairbanks-Morse Manufacturing Company, Beloit, Wis.

Thomas Gray Webber (II.), 179 Lafayette Street, Salem, Mass., doing some special work in electricity at Institute.

Mildred F. Wheeler (XIII.), London House, Mt. Hermon, Mass., teaching.

James L. Wick, Jr. (II.), 753 Wick Avenue, Youngstown, Ohio, assistant to master mechanic, Youngstown Sheet & Tube Company, Youngstown, Ohio.

Sylvanus W. Wilder (II.), 283 Ellison Street, Paterson, N.J., mechanical engineer, Dolphin Jute Mills, Paterson, N.J.

Nahum C. Willey (XIII.), 200 10th Avenue, N., Seattle, Wash., draughtsman with the Moran Shipbuilding Company, Seattle, Wash.

Charles F. Willis (III.), Cooney, Socorro County, N.M., assayer and surveyor for the Enterprise Mining Company, Cooney, N.M.

George M. Winne (II.), 709 Marietta Avenue, Milwaukee, Wis.

John T. Wrinkle (IV.), M. I. T., Boston, Mass., graduate student, M. I. T.

Harold Eugene Young (VI.), 41 Rutland Square, Boston, Mass., engineering department of the American Telephone & Telegraph Company, 125 Milk Street, Boston, Mass.

A geographical register has been prepared with the idea of assisting every member who has thus far been heard from to locate and get in touch with his neighbors. The members are urged to meet together in small or large groups. Those who are expecting to make trips are urged to look up in advance their classmates located along their itinerary, and try to get in touch with them.

In using this register, the list of changes of addresses (to be found on another page) should also be consulted, since the latter contains changes which arrived too late for entry in the register of this issue.

ALABAMA

Edward P. Cutter	Ensley

ARIZONA

Henry S. Mears	Bisbee
Harold C. Plummer	Globe, Gila County
R. B. Sarratea	Clifton

BRAZIL

Jorge Lage	Ilha do Viana, Rio Janeiro

CALIFORNIA

Edward L. Mayberry	1054 East Ocean Avenue, Long Beach
John M. Morris	527 South Main Street, Los Angeles
William Neilson	Oasis, Mono County
Louie A. Parker	1255 West 6th Street, Los Angeles
Atwood E. Rippey	Care C. H. Rippey, Conrad Building, San Diego
Clarence H. Sutherland	Westport

CANADA

William J. Deavitt	Crean Hill Mines, Ontario
Fay W. Libbey	Cobalt, Ontario
Elmer D. McCain	Union Bank Building, care George H. Archibald & Co., Winnipeg

COLORADO

Walter S. Brown	417 Boston Building, Denver
Willis S. Caypless	1035 Logan Avenue, Denver
Alfred R. Heckman	Lake City
Harry C. Merriam	201 East Orinon Avenue, Pueblo
Russell P. Raynolds	670 Third Avenue, Durango

William A. Sheldon	Care Taylor Park Mining Company, Dorchester
Louis B. Tuckerman	1365 Ogden Street, Denver
Jean P. Varian	253 Lincoln Avenue, Denver
Arthur E. Wells	Leadville
Sylvester C. Wolfe	Sand's Camp, Montrose

CONNECTICUT

William W. Gaylord	Torringford
Nathan J. Gibbs	25 Slater Avenue, Norwich
Frederick B. Guest,	375 Maple Street, Bridgeport
Walter A. Hotchkiss	698 Kossuth Street, Bridgeport
Alden Merrill	74 Litchfield Street, Torrington
James S. Pitkin	P.O. Box 1051, New Haven
Edward M. Richardson	Lime Rock

CUBA

Nestor M. Seiglie	Sagua la Grande

DISTRICT OF COLUMBIA

Herman T. Gammons	United States Patent Office
William A. Hardy	322 United States Patent Office
Charles T. Leeds	Washington Barracks
George C. Noble	Treasury Department
Edward L. Wilson	904 East Capitol Street

ENGLAND

Charles G. Loring	Care Baring Brothers, London

FLORIDA

Lewis A. Thompson	Pensacola

FRANCE

Paul F. Mann	Care American Express Company, Paris

GEORGIA

George R. Shingler, Jr.	Emory College, Oxford

GERMANY

Hans O. C. Isenberg	Technische Hochschule, Charlottenburg

IDAHO

Edward M. Eliot	Post Falls

ILLINOIS

Arthur M. Cheney	Care Illinois Steel Company, South Chicago
Chester A. Hoefer	9 Lincoln Avenue, Freeport
Milton T. Lightner	Highland Park
Herbert J. Mann	751 Pinegrove Avenue, Chicago
Maurice C. Thompkins	336 Monadnock Building, Chicago
James R. Williams	196 South 18th Street, Quincy

INDIA.

Ishwar Das Varshnei	Sikandra Rau, District Aligarh, U. P.

INDIANA

Ralph D. Kelley	Room 8, Union Station, Indianapolis
Galt F. Parsons	Care Terre Haute Traction & Light Co., Terre Haute
Franklin J. Van Hook	Care Big Four Railroad Company, Wabash
Lawrence B. Webster	Marion

KANSAS

Harold G. Hixon	Y. M. C. A. Building, Iola

KENTUCKY

George W. Burpee	P.O. Box 476, Louisville
Wallace Newberger	763 Sixth Street, Louisville

LOUISIANA

Laurence G. Blodgett	Slidell

MAINE

John P. Chadwick	Saco
Harry V. Fletcher	383 Spring Street, Portland
Herbert S. Philbrick	Waterville
Howard P. Shaw	Buckfield

MARYLAND

John W. Anderson	P.O. Box 806, Sparrow's Point
Joseph T. Lawton	Care Joseph Thomas & Son, Baltimore
Louis H. Maxfield	Annapolis
Walter Smith	United States Naval Academy, Annapolis
Arthur S. Thomas	809 Continental Trust Building, Baltimore

MASSACHUSETTS

Daniel Adams	55 Jackson Street, Lawrence
Lyman Anson	33 St. James Avenue, Boston
Fritz A. Armstrong	220 West River Street, Hyde Park

Herbert J. Ball	315 Pawtucket Street, Lowell
James I. Banash	5 Fayston Street, Roxbury
William P. Bearce	Foxboro
Harold W. Beers	52 Cedar Street, Taunton
Frank A. Benham	48 St. Stephens Street, Boston
Leavitt N. Bent	Framingham
Edgar M. Berliner	M. I. T., Boston
Rutherford Bingham	Technology Chambers, Boston
Otto B. Blackwell	16 Rutland Square, Boston
Albert A. Blodgett	28 Greenville Street, Roxbury
Mildred E. Blodgett	9 Batavia Street, Boston
A. L. Boynton	88 Chatham Street, Worcester
Harry W. Brown	118 Brighton Corner, Allston
George H. Buckingham	138 Newbury Street, Boston
Edmund S. Campbell	48 St. Stephens Street, Boston
Sidney T. Carr	18 Thayer Street, Quincy
Henry P. Carruth	Care American Writing Paper Company, Holyoke
Anna M. Cederholm	65 Marlboro Street, Belmont
Walter E. Chadbourne	41 Newport Street, Dorchester
Charles H. Chase	15 Westfield Street, Dedham
Arthur M. Chidester	Technology Chambers, Boston
Avedis M. Chuchian	82 Fifth Street, Chelsea
Prescott J. Clapp	169 Boston Street, Upham's Corner
Lewis C. Clarke, Jr.	264 Green Street, Cambridge
Ralph S. Clarke	35 Rockwell Street, Dorchester
Walter B. Clifford	94 Sumner Street, Fitchburg
Maxwell A. Coe	43 Ashland Street, Medford
Harry H. Cook,	27 Lamartine Street, Jamaica Plain
Raymond E. Cranston	425 Quincy Street, Dorchester
E. H. Daniels	Natick
Henry E. Darling	125 Milk Street, Boston
John P. Davis	35 Huntington Street, Lowell
Leon H. Davis	25 Union Park, Boston
Walter D. Davol	19 Bartlett Street, Charlestown
Edward H. Dean	38 General Cobb Street, Taunton
Walter G. de Steiguer	12 Newbury Street, Boston
Colby Dill	460 Commonwealth Avenue, Newton Centre
Frank E. Dixon	25 Hulburt Street, Roxbury
Thomas F. Dorsey	M. I. T., Boston
Alice B. Douglas	La Fayette Avenue, Hingham
Ralph L. Dyer	11 Grove Street, Winchester
Frederic E. Earle	10 Downer Street, Dorchester
William F. Eastwood	155 Ruggles Street, Boston
Harold C. Elliott	11 Ruskin Street, West Roxbury
Carleton M. Emerson	72 Mt. Vernon Avenue, Braintree
Edward B. Evans	116 Cedar Street, Malden

Nugent Fallon	489 Walnut Avenue, Jamaica Plain
William F. Farley	176 Federal Street, Boston
Robert D. Farrington	Bellevue Street, West Roxbury
Arthur E. Feeley	Pittsfield
Andrew Fisher, Jr.	180 East River Street, Hyde Park
Harry A. Frame	M. I. T., Boston
Frank W. Friend	M. I. T., Boston
Floid M. Fuller	M. I. T., Boston
Robert S. Gardner	Technology Club, Boston
Samuel E. Gideon	M. I. T., Boston
Henry A. Ginsburg	19 Clinton Street, Cambridge
Wilford D. Gray	21 Chestnut Street, Woburn
James E. Griffin	130 Temple Street, West Newton
Perley K. Griffin	86 Walnut Street, Neponset
Ransom C. Grosvenor	371 Columbus Avenue, Boston
George R. Guernsey	27 Eaton Street, Winchester
Birendra C. Gupta	203 West Newton Street, Boston
Frank Haley	9 Adams Court, Lynn
Henry B. Hallowell	112 School Street, Belmont
Charles E. Hamilton	27 Endicott Avenue, Beachmont
Charles W. Hawkes	101 Milk Street, Boston
Marden W. Hayward	233 Goffe Street, Quincy
Royal R. Heuter	M. I. T., Boston
Angelo T. Heywood	M. I. T., Boston
Guy Hill	41 High Street, Everett
Frederick W. Hinds	61 Kirkstall Road, Newtonville
Herbert P. Hollnagel	M. I. T., Boston
William W. Hosmer	63 Ridge Avenue, Athol
Robert N. Hoyt	40 Oak Street, Hyde Park
Charles M. Hutchins	M. I. T., Boston
Ralph H. Jackson	335 Centre Street, Jamaica Plain
Ralph T. C. Jackson	57 Oak Square Avenue, Brighton
Arthur H. Jansson	Mt. Pleasant Avenue, Malden
Charles E. Johnson	119 Trenton Street, East Boston
Joseph W. Johnson	30 Summer Street, Dorchester
Gilman B. Joslin	46 Burroughs Street, Jamaica Plain
Charles L. B. Kasson	10 Thetford Avenue, Dorchester Centre
Burton W. Kendall	M. I. T., Boston
Andrew Kerr	317 Forest Street, Medford
Rinker Kibbey	M. I. T., Boston
James W. Kidder	22 Brook St., Somerville
Ralph F. Knight	49 Church Street, Hudson
Frederic S. Krag	Care B. F. Sturtevant Company, Boston
Abraham Lampie	28 Greenwood Street, Dorchester
Clarence E. Lasher	19 Bedford Street, Lynn
Edmund K. Lawrence	242 Newbury Street, Boston

Ralph C. Lawrence	26 Highland Avenue, Fitchburg
Waldron G. Lawrence	34 Sargent Street, Dorchester
Dan A. Loomis	Technology Chambers, Boston
Forrest W. Lord	142 East Emerson Street, Melrose
Harold Lord	30 Auburn Street, Malden
William J. Lumbert	P.O. Box 287, Walpole
Fred C. Lutze	14 Chelsea Street, East Boston
Claude S. McGinnis	M. I. T., Boston
Richard V. McKay, Jr.	East Milton
Joseph N. McKernan	75 Gainsboro Street, Boston
Eleanor M. Manning	26 Beacon Hill Avenue, Lynn
Albert P. Mansfield	Wakefield
Edward L. Manson	M. I. T., Boston
Anthony P. Mathesius	237 Beacon Street, Boston
Louis F. Mesmer	242 Newbury Street, Boston
Winthrop N. Messenger	283 Vinton Street, Melrose Highlands
John E. L. Monaghan	319 Fourth Street, South Boston
James G. Moore	M. I. T., Boston
Charles W. Mowry	425 Quincy Street, Dorchester
Harold K. Munroe	43 Warren Avenue, Woburn
Floyd A. Naramore	29 St. Botolph Street, Boston
Samuel A. Nash	77 Toxteth Street, Brookline
Arthur Neale	M. I. T., Boston
Henry H. Nelson	16 Myrtle Street, Jamaica Plain
Sherley P. Newton	M. I. T., Boston
Henry G. Nicholas	Back Bay P.O., Boston
Utar J. Nicholas	263 Newbury Street, Boston
John F. Norton	132 Woodland Road, Auburndale
Henry L. Oaks	South Framingham
James B. L. Orme	18 St. James Avenue, Boston
Alphonsus O'Farrell	82 Dustin Street, Brighton
Rowland E. Page	79 Worcester Street, Boston
R. R. Patch	28 Lincoln Street, Stoneham
Jane B. Patten	Simmons College, Boston
Henry R. Patterson	M. I. T., Boston
Fred S. Phelps	88 Chatham Street, Worcester
Willis Ranney	Technology Chambers, Boston
James Reed, Jr.	311 Beacon Street, Boston
Charles D. Richardson	48 Highland Avenue, Cambridge
John A. Root	Technology Chambers, Boston
Robert J. Ross	86 Clifton Street, Belmont
Edward B. Rowe	9 St. James Avenue, Boston
Wiear L. Rowell	Swampscott
Mary J. Ruggles	65 Wendell Street, Cambridge
Henry E. K. Ruppel	Gillette Safety Razor Company, First and Colton Streets, Boston

Charles Saville	Room 140, State House, Boston
Ephraim F. Searle	109 May Street, Lawrence
Samuel Seaver	262 Franklin Street, Cambridge
Ray E. Shedd	212 Highland Avenue, Somerville
Andrew B. Sherman, Jr.	Technology Chambers, Boston
Ralph Shurtleff	57 Prospect Street, Taunton
John E. Simmons	34 South Central Avenue, Wollaston
Harold C. Smith	3 Abbott Street, Newton Upper Falls
Lillie C. Smith	163 Huntington Avenue, Boston
Everett C. Stanton	P.O. Box 367, Sharon
Percy Staples	215 Newbury Street, Boston
Edgar C. Steinharter	Technology Chambers, Boston
Robert R. Stoddard	North Hanover
Harold W. Streeter	150 West Newton Street, Boston
Arthur W. Talbot	3 Nottingham Street, Dorchester
Horace A. Tarr	75 Thorndike Street, Cambridge
Herbert A. Terrell	15 State Street, Boston
Killey E. Terry, Jr.	714 Washington Street, Dorchester
Louis H. Tripp	42 Rutland Square, Boston
Clarence E. Tucker	Hyde Park Avenue, Hyde Park
William T. Turnbull	35 Rutland Square, Boston
Stanley M. Udale	Technology Chambers, Boston
William M. Van Amringe	29 Crawford Street, Roxbury
William F. Walker	167 Andover Street, Lawrence
William J. Walsh	5 Woodville Street, Roxbury
Ernest A. Walter	M. I. T., Boston
Samuel L. Ware	103 Thurston Street, Somerville
Arthur P. Watt	176 Forest Street, Winchester
Thomas G. Webber	179 Lafayette Street, Salem
Mildred F. Wheeler	Mt. Hermon
George F. White	Franklin Park
Herbert S. Whiting	274 Seaver Street, Roxbury
Bernard F. Whittaker	10 Front Street, Worcester
Malcolm G. Wright	334½ Washington Street, Wellesley Hills
Harold S. Wilkins	M. I. T., Boston
Frederick H. Willcox	M. I. T., Boston
Dana M. Wood	35 Myrtle Street, Belmont
Ira V. Woodbury	72 Lothrop Street, Beverly
Julian M. Wright	10 Charles Street, Boston
William H. P. Wright	172 Jackson Street, Lawrence
John T. Wrinkle	M. I. T., Boston
George C. Young	10 Rawson Street, Dorchester
Harold E. Young	125 Milk Street, Boston

MEXICO

Thomas B. Holmes	Aguascalientes, Ags.
Robert Hursh, care American Smelting & Refining Company,	Apartado 101, Monterey, N.L.
Albert L. Stephens	Aguascalientes, Ags.

MICHIGAN

Herbert S. Bailey	Box 102, Agricultural College
Edward Chandler	43 Mills Street, Grand Rapids
George F. Hunt	Ann Arbor
Roger L. Rice	St. Clair

MINNESOTA

George M. Henderson	Hibbing
Frank Logan	1318 Vine Place, Minneapolis
John E. Murphy	Bovey

MISSISSIPPI

Charles H. Shapleigh	Vicksburg
John C. Wilson	Pass Christian

MISSOURI

Allen Ashley	Care E. H. Abodie & Co., St. Louis
Jesse R. Clark	5330 Bartmer Avenue, St. Louis
Herman C. Henrici	1013 Park Avenue, Kansas City
Alfred W. Hertz	2121 Benton Boulevard, Kansas City
James H. Polhemus	Carthage
William E. H. Mathison	105 North Pennsylvania Avenue, Webb City
Clifford R. Wilfley	Maryville, Nodoway County (temporarily)

MONTANA

Elmer E. Harrington	Care B. & M. Co., Great Falls
Guy H. Ruggles	Care B. & M. Co., Great Falls

NEW HAMPSHIRE

Frederick R. Batchelder	Hampton
David Bloom	Care Claremont Paper Company, Claremont
Louis P. Chadwick	9 Green Street, Claremont
Robert S. Clark	9 Green Street, Claremont
Alexander Hicks	45 Prospect St., Claremont
Charles E. Hovey	84 State Street, Portsmouth
Harry L. Lewenberg	P.O. Box 634, Berlin
Le Roy H. Shipman	P.O. Box 1210, Berlin
Carleton M. Soule	Hanover

NEW JERSEY

Stuart W. Benson	48 Chestnut Street, Trenton
Fred H. Bentley	32 South Second Street, Elizabeth
Stewart E. Coey	156 Broad Street, Newark
Hunter U. Light	40 West 30th Street, Bayonne
Sylvanus W. Wilder	283 Ellison Street, Paterson

NEW MEXICO

James N. Gladding	606 John Street, Albuquerque
Charles F. Willis	Cooney, Socorro County

NEW YORK

Howard P. Adams	202 West 44th Street, New York City
Simeon C. Allen	American Fruit Product Company, Rochester
Howard P. Barnes	White Plains
Louis L. B. Booth	Poughkeepsie
Charles F. Breitzke	78 Fisher Avenue, White Plains
Harry H. Browne	17 Battery Place, New York City
Charles R. Burleigh	741 Broadway, Albany
James M. Buchanan	208 West 82d Street, New York City
George Burnap	Westbury Station, Long Island
William J. Cady	435 Greenwood Avenue, Richmond Hill, Long Island
Harold V. O. Coes	Care Western Electric Company, 463 West Street, New York City
Robert E. Cushman	741 Broadway, Albany
Roland P. Davis	42 Broadway, New York City
Theodore Dissel	701 James Street, Syracuse
Sylvester B. Eagan	993 Delaware Avenue, Buffalo
David D. Eames	15½ Orchard Street, Auburn
William F. Englis	327 West 86th Street, New York City
Thomas W. Faber	49 Carson Avenue, Newburg
William C. Furer	573 Second Street, Brooklyn
George C. Furness	523 River Street, Hoboken
Samuel A. Greeley	170 Broadway, New York City
Edward C. Groesbeck	Care Professor Howe, Columbia University, New York City
Wallace R. Hall	Hunts Point Road, Bronx, New York City
George F. Hobson	125 East 28th Street, New York City
Charles A. Howard	55 Duane Street, New York City
Helen R. Hosmer	1716 Union Street, Schenectady
Henry S. Hubbell	83–85 Washington Street, New York City
Andrew H. Keleher	55 Duane Street, New York City
Patrick J. Kennedy, Jr.	221 West 43d Street, New York City
Howard W. Key	773 State Street, Schenectady
William H. Lincoln	125 East 28th Street, New York City
Frederick C. Line	50 Rowley Street, Rochester

Henry D. Loring	61 21st Street, Whitestone, New York City
James R. McClintock	170 Broadway, New York City
John H. McManus	White Plains
Charles B. Morey	101 Depew Avenue, Buffalo
Harold Morse	392 Fourth Street, Brooklyn
Park V. Perkins	52 Broadway, New York City
Edward B. Pollister	225 West 45th Street, New York City
Burnell Poole	15 Dey Street, New York City
Phillip B. Sadtler	Mechanicsville
Arthur L. Sherman	4 Grand Street, White Plains
Ernest M. Smith	Solvay Process Company, Syracuse
Lemuel D. Smith	Care Winthrop Press, New York City
Ralph N. Soule	215 West 23d Street, New York City
Walter H. Trask	Room 1229, Grand Central Station, New York City
Arthur T. Trowbridge	555 Warren Street, Hudson
Walter B. Wyman	Crown Point, Essex County

Ohio

Edwin B. Bartlett	4926 Linden Avenue, Norwood [Cincinnati]
Earl G. Christy	2924 Collingwood Avenue, Toledo
Robert H. Doepke	3595 Washington Avenue, Cincinnati
Joseph H. Teemster, Jr.	Glendale
Charles E. Fogg	1122 Union Trust Building, Cincinnati
Michael J. Gibbons, Jr.	239 North Main Street, Dayton
Thomas L. Hinckley	Care State Board of Health, Columbus
Bruce R. Honeyman	Care Cristo Hospital, Cincinnati
Karl F. Juengling	461 Dunham Avenue, Cleveland
William I. Lourie	144 West Rayen Avenue, Youngstown
Oscar S. Pulman, Jr.	1791 117th Street, Cleveland
Paul S. Schmidt	406 American Trust Building, Cleveland
Guy C. Simpson	451 Wilson Ave., Columbus
Lambert Thorp	512 Prospect Place, Avondale, Cincinnati
James L. Wick, Jr.	753 Wick Avenue, Youngstown

Oregon

Richard F. Hammatt	Cascade Forest Reserve at Roseburg

Panama

Andrew L. Bell	Culebra, Canal Zone
Frank A. Browne	Culebra, Canal Zone
Sidney L. Davis	Cristobal, Canal Zone
Robert J. Lyons	Culebra, Canal Zone

Pennsylvania

Charles T. Bartlett	Box 392, Crafton
Robert H. Booth	Linwood Station

Eugene P. Chase	817 Walnut Street, Wilkinsburg
Paul N. Critchlow	Care American Bridge Company, Ambridge
George L. Davenport, Jr.	1113 Union Station, Pittsburg
David C. Davis	6700 North 8th Street, Oak Lane, Philadelphia
Herbert W. Dean	6700 North 8th Street, Oak Lane, Philadelphia
John J. Donovan	4924 Centre Avenue, Pittsburg
Carroll A. Farwell	1013 Pennsylvania Avenue, Pittsburg
Leon E. Hirt	55 Water Street, Pittsburg
Frank R. Ingalsbe	Lehigh University, South Bethlehem
Isa W. Kahn	Care Homestead Steel Works, Munhall
William J. Knapp	Care Westinghouse Electrical & Manufacturing Company, Pittsburg
Clifford Lynde	Union Station, Oil City
Harvey B. Orcutt	235 Fourth Avenue, Phœnixville
Clarence B. Powell	3411 Walnut Street, Philadelphia
Edward M. Read	4811 Regent Street, Philadelphia
Philip B. Stanley	411 McNair Street, Wilkinsburg
Allyn C. Taylor	6700 North 8th Street, Oak Lane, Philadelphia
DeWitt M. Taylor	Blairsville
Percy E. Tillson	6700 North 8th Street, Oak Lane, Philadelphia
Nathaniel A. White	1515 Girard Avenue, Philadelphia

PORTO RICO

Edward T. Steel	Care Ponce Railway & Lighting Company, Ponce
Herminio Yrizarry	Box 82, San German

RHODE ISLAND

Edgar C. Ballou	15 Laura Street, Providence
Shields Burr	Woonsocket
Walter C. Spencer	162 Peace Street, Providence
Frederick B. Thurber	229 Waterman Street, Providence

SOUTH DAKOTA

Chadwell S. Pierce	Bovine (temporarily)
Herbert L. Williams	Lead

TEXAS

Clarence M. Cockrell	Denton
Walter N. Munroe	358 Commerce Street, Dallas
Wendell P. Terrell	Prairie View
Charles F. W. Wetterer	Wilson Building, Dallas

UTAH

Raymond J. Barber	Bingham Cañon
Clarence E. Carter	Care William Ashton, chief engineer, Salt Lake City

VIRGINIA

Albert W. Hemphill	506 Moore Street, Bristol
Wilfred N. Oliver	360 Eleventh Avenue, S.W., Roanoke

WASHINGTON

Ogden R. Adams	Care Seattle Electric Company, Seattle
Quincy P. Emery	221 Colman Block, Seattle
Carl C. Stevens	Ritzville
Nahum C. Willey	200 Tenth Avenue, N., Seattle

WISCONSIN

Edwin D. A. Frank	2300 Grand Avenue, Milwaukee
Clark E. Warren	803 College Avenue, Beloit
George M. Winne	709 Marietta Avenue, Milwaukee

The following *changes* of *address* have been noted since October;

Fred R. Batchelder (VI.), 817 Walnut Street, Wilkinsburg, Pa., apprentice, Westinghouse Electric & Manufacturing Company.

In the October REVIEW, through an error, Frank A. Benham (I)., who is in the Engineering Department of the New England Telephone & Telegraph Company, at 104 Milk Street, Boston, Mass., was reported as being with the American Telegraph & Telephone Company at 125 Milk Street.

Laurence G. Blodgett (I.), Slidell, La.

Walter E. Chadbourne (XIII.), is no longer with the Edison Electrical Illuminating Company, but is working as surveyor and draughtsman in Plan Department, Factory Mutual Fire Insurance Company, 31 Milk Street, Boston, Mass. His mail address is still 41 Newport Street, Dorchester, Mass.

Harold V. O. Coes' mail address is 214 West 82d Street, New York, N.Y.

David C. Davis (VI.) has very likely moved with the Philadelphia bunch from 6700 North 8th Street, Oak Lane, to 3411 Walnut Street, Philadelphia, Pa.

Herbert W. Dean, 3411 Walnut Street, Philadelphia, Pa. He and Davis are both in the Engineering Department of the Bell Telephone Company of Philadelphia, at 1633 Arch Street, Philadelphia, Pa.

John J. Donovan has gone from Pittsburg to New York, 174 West 109th Street, care of Gromer, New York City, and is building superintendent, with Ernest Flagg, 35 Wall Street, New York City.

Frederic E. Earle (II.), apprentice with Lumsden and Van Stone, Boston, Mass., now lives at 24 Leroy Street, Dorchester, Mass.

Edward B. Evans (IV.) is no longer with Purdy & Henderson, Boston. His address is 36 East 28th Street, New York, N.Y., and he is working as structural engineer with Underwriters' Engineering Company, 1170 Broadway, New York City.

William C. Furer (IV.), formerly with the American Bridge Company of New York City, is now draughtsman with (address) Department of Yards and Docks, United States Naval Station, Key West, Fla.

William W. Gaylord (II.), with American Brass Company, is at 120 Cook Street, Waterbury, Conn.

Charles E. Hamilton, 43 High Street, Charlestown Mass., with the American Telephone & Telegraph Company.

Elmer E. Harrington (III.), 518 Seventh Street, North, Great Falls, Mont., is still with the Boston and Montana Consolidated Copper and Silver Mining Company.

George M. Henderson (III.), formerly in Hibbing, Minn., now Box 54, Rhyolite, Nev., as engineer with Tramp Consolidated Mining Company, Rhyolite, Nev.

"Tommy" Holmes (III.), formerly in Jalisco, Mex., is now with the American Smelting & Refining Company, where "Al" Stephens (III.) is working. Address, Hotel Bellina.

Bruce R. Honeyman (IV.) has recovered from sickness, and is now with the Contracting Engineering Company, Tacoma, Wash. Mail address, 63 North 20th Street, Portland, Ore.

James A. Kane (XIII.), M. I. T., Boston, Mass., student.

Andrew H. Keleher (VI.), 365 West 23d Street, New York, N.Y., with the Electrical Department of the New York Edison Company.

Harold A. Kingsbury (X.), M. I. T., Boston, Mass., student.

Charles T. Leeds (L), Fort Bayard, N.Mex., First Lieutenant, Corps of Engineers, United States Army.

Fay W. Libbey (III.), P.O. Box 139, Cobalt, Ontario, Canada.

Harold Lord (IV.), formerly with Eastern Expanded Metal Company, is now at the Light-house Depot, Tompkinsville, N.Y., as architectural and structural steel draughtsman, Light-house Service.

Richard V. McKay, Jr. (III.), who spent the summer abroad, is now assistant to both the superintendent and general manager of the Pennsylvania Steel Company. Address, Care of Pennsylvania Steel Company, Lebanon, Pa.

Joseph N. McKernan (I.), formerly draughtsman with Bangor & Aroostook Railroad, is now with the Engineering Department, New England Telephone & Telegraph Company, Boston. Address, 75 Gainsboro Street, Boston, Mass. He has been recently located on work in Haverhill, Mass.

Eleanor M. Manning is draughtsman, 93 Water Street, Boston, Mass. (until Jan. 1, 1907). Address, 26 Beacon Hill Avenue, Lynn, Mass.

Charles B. Morey (VIII.), formerly with the American Radiator Company is now assistant chemist with the Larkin Company, Buffalo. Address, 101 Depew Avenue, Buffalo, N.Y.

James H. Polhemus (III.), formerly with New Jersey Zinc Company, has gone to Carthage, Mo. Full address later. Letters will reach him via his home, 18 Moreland Avenue, Newton Centre, Mass.

Robert J. Ross (III.), of 86 Clifton Street, Belmont, Mass., is with H. R.

Buck, civil engineer, Hartford, Conn., working on Massachusetts-Connecticut State Line Survey.

Mary J. Ruggles (V.), formerly at Radcliffe, is now at 18 Rugby Road, Schenectady, N.Y., engaged as chemist at the Research Laboratory of the General Electric Company. Miss Ruggles and Miss Hosmer (V.) are two of a group of three Technology women at the General Electric Company's laboratories.

Roberto B. Sarratea (III.) has gone out to Clifton, Ariz., to work in mines.

Nestor M. Seiglie (I.), of Sagua la Grande, Cuba, is with the Cuban Central Railway, Ltd.

Allyn C. Taylor (II.), with the Distribution Department, United Gas Improvement Company, has moved from Oak Lane to 3411 Walnut Street, Philadelphia, Pa.

The address of De Witt McC. Taylor (II.), given in the last REVIEW as Blairsville, Pa., should be Box 1, Black Lick, Pa.

Percy E. Tillson (VI.), of the Bell Telephone Company of Philadelphia, has moved with Taylor to 3411 Walnut Street, Philadelphia, Pa.

Walter H. Trask (II.) is now at 397 Warburton Avenue, Yonkers, N.Y., assisting inspector, Yonkers Power Station, N. Y. C. & H. R. R.R.

F. J. Van Hook (I.), formerly located at Wabash, Ind., is now draughtsman with the Charles River Dam Commission. Office, 367 Boylston Street, Boston. Residence, 40 Sherman Street, Roxbury, Mass.

Arthur E. Wells (III.), metallurgical chemist with the American Smelting & Refining Company, has transferred from Leadville, Col., to Murray Station, Salt Lake, Utah.

When Sylvester C. Wolfe (I.) was with the United States Reclamation Service in Colorado, he used to see Kriegsman (I.), '05, frequently. Now Wolfe is structural draughtsman for the Builders' Iron & Steel Company, Bridge Street, Cambridge, Mass. Residence, 138 Boston Avenue, West Medford, Mass.

The secretaries have gleaned a few notes on the activities and movements of the members of the class:

Barnes (I.), seems to have resigned himself very completely to the locality and atmosphere of White Plains.

C. T. Bartlett and C. A. Farwell, '06, found time during December to come out to Columbus, Ohio, and pay a short visit to Simpson and Hinckley, who are both located there. There were hardly enough present to paint the town a very deep shade of red. Both the visiting Pittsburgers had the good fortune to make the return train without any difficulty.

Charles F. Breitzke (XI.) visited Boston in the fall, and also came home for Christmas.

"Editor" Howard H. Brown (XIII.) was in Pittsburg, reporting a Boiler Maker Convention.

Charles R. Burleigh (II.) is mechanical engineer with the Consolidated Car Heating Company, Albany, N.Y. He is doing mostly electrical work.

William J. Cady (VI.) visited Boston Christmas week.

Coey (VI.) runs over to Boston from New York now and then.

William Couper (I.) is reported with the Penn., N.Y. & L. I. R.R., at 125 East 34th Street, New York, N.Y.

H. C. Crowell, '03, of Salem, together with our "Schubert," George L. Davenport, Jr. (I.), furnish the music for the Panhandle crowd at Crafton, Pa.

Eliot (VI.) has been heard from out of the "Wild and Woolly." He reports fine scenery and vigorous work. Eliot is engaged on a water power development project.

C. A. Farwell (I.), who, with C. T. Bartlett (I.), is working for the Panhandle Railway, was back home for a week from Pittsburg. (See also C. T. Bartlett.) He sent us an account of the Pittsburg reunion.

Edwin D. A. Frank (II.) says that summer school in machine tools is not in it with a summer course in the foundry of the Allis-Chalmers Company.

George C. Furness (VIII.), who is engaged as instructor in physics at Stevens Institute of Technology, came up from Hoboken, N.J., on a two weeks' Christmas vacation to visit Boston and his home in Manchester, N.H.

Alfred W. Geist, Jr. (VI.), was seen by the resident secretary in New York, July, 1906, when his address was Hotel Manhattan, New York City. Present address not known. He is connected with an electrolytic refining company.

Michael J. Gibbons, Jr. (VI.), is busy out in Dayton, Ohio. He is well located as buyer for the plumbing and heating lines with his father, and is doing prosperously. Address 20 and 22 West Third Street, Dayton, Ohio.

"The engagement of Wallace Ralph Hall, of Newton Highlands, to Miss Edith A. Swett, of Newton Centre, Mass., was formally announced at a heart party given at her home Dec. 27, 1906. Mr. Hall graduated from Tech with the 1906 class in civil engineering, and has since been employed by the New York Contracting Company."

Late in the fall Elmer E. Harrington (III.) came East from Great Falls, Mont., to his home near Boston, bound "on an errand." When he called at the Institute, he appeared quite happy.

Among those who took advantage of the M. I. T. Summer School of Mining and Metallurgy, June–July, 1906, were Ralph Hayden, Marden W. Hayward, and Angelo T. Heywood, all Course III. During the remainder of the summer Hayden was engaged with Professor Richards at the Institute on United States Geological Survey work. During the first term he has been assistant in the Mining Department. On Jan. 14, 1907, he leaves Boston for Anaconda, Mont., where he will be assistant in the testing laboratory of the Anaconda Copper Mining Company. Hayward spent part of the summer in the Maine woods,

and returned to study at the Institute in the Geological Course. After the Summer School, Heywood was assistant for Professor Richards on private work at the Institute until September 1, when he began his present work as assistant to the Registrar, with location at the Information Desk, Rogers Building.

Thomas L. Hinckley (XI.) was out in St. Paul, his home, for a week's vacation at Christmas.

Leon E. Hirt (III.) made a couple of visits to Boston from Pittsburg in the fall.

Patrick J. Kennedy, Jr. (II.) was seen in Boston Christmas week.

Jorge Lage (II.), Ilha do Viana, Rio de Janeiro, Brazil. On Oct. 8, 1906, Lage was married to Mlle. Elisabeth Perrin, Châlon-sur-Saône, France.

Fay W. Libbey (III.) was seen in Boston about Christmas time.

Paul Lincoln (III.) is reported to have gone West last summer to work in a mining district.

During the latter part of November, William H. Lincoln (I.) visited Boston. He is with the Penn., N.Y. & L. I. R.R., engaged on freezing tests for tunnel work under the rivers. William Couper (I.) is with him. Lincoln also reports that George F. Hobson (XI.), with Albert F. Bancroft (III.), '07 (who played so well in Tech shows), are located at 22 Pearson Street, Long Island City, N.Y., on the Long Island end of the work.

A loyal voice comes up from Culebra, in the Canal Zone, Panama. Robert J. Lyons (XIII.) signs "1906 forever."

James R. McClintock (XI.) was in Pittsburg a short time ago on the business of his firm, Messrs. Hering & Fuller of New York.

Richard V. McKay (III.), now with the Pennsylvania Steel Company, visited his home in East Milton, Mass., during Christmas week.

Herbert J. Mann (II.) is reported to have eloped with "Begum's Daughter." We trust he will return the book to the General Library in due time.

John E. Murphy (III.), mining engineer with the Oliver Iron Mining Company, Bovey, Minn., has changed from the Holman Mine to the Arcturus Mine.

"Dick" Polhemus (III.) visited home at Christmas week on his way from New Jersey to Missouri. He was looking very well.

From the *Tech*, Jan. 2, 1907: "The announcement of the engagement of James Reed, Jr., assistant naval constructor, United States Navy, attached to the Boston Navy Yard, and Miss Laura C. Maltby, of Jamestown, N.Y., has been made. Mr. Reed, in conjunction with his work at this place, is doing graduate work in naval architecture at Tech."

Guy C. Simpson (I.) after leaving school spent the first two months on a very interesting automobile trip through New England. On September 1 he started in with the Pennsylvania Railroad at Columbus, and is now doing construction and estimate work in connection with maintenance of way on the Indianapolis division.

Everett C. Stanton (VI.), who is in the students' course, Engineering Department of the New England Telephone & Telegraph Company, Boston, Mass., has been working in that part of New Hampshire south of Lake Winnepesaukee, and has also been at work in Worcester, Mass. Among the steps in the student course are: (1) shop work and repairs on small-size instruments; (2) construction on large scale, including either building or testing; (3) traffic work, which includes operating; future growth, etc.

Nat White (XIII.) is at the Cramps' shipyard in Philadelphia.

Edward L. Wilson (II.), 616 East Capitol Street, Washington, D.C., is draughtsman with S. Homer Woodbridge on heating and ventilating the National Museum. He has also been up to Syracuse, N.Y., doing inspection work on the Onondaga County Court and Power Houses, and was home for Christmas.

George C. Young (II.) is now superintending in water foundation work, Neponset Bridge, Neponset River, Mass.

The resident secretary wishes to acknowledge the aid from '06 men of the Civil Engineering Department of M. I. T. towards the preparation of the geographical register for this issue of the REVIEW.

The secretaries regret that lack of space in this number prevents the publication of letters received from P. B. Sadtler, "Bob" Hursh, W. P. Terrell, "Hank" Mears, "Wet," N. P. Gerhard, and "Bill" Deavitt.

Down in Pittsburg the fellows have got together well. Carroll A. Farwell writes:—

We had a very successful little reunion at Hotel Duquesne, Pittsburg, on the evening of Saturday, January 5. There were twenty-eight Tech men present: G. K. Newbury, '98; H. C. Crowell, '03; W. R. Davis, '03; W. H. Koppelman, '04; C. W. Babcock, '05; C. L. Dean, '05; E. B. Hill, '05; W. G. Housekeeper, '05; J. Davis, Jr., '05; H. C. Kendall, '05; E. N. Lyon, '05; A. J. Manson, '05; L. M. Pease, '05; W. F. Smart, '05; A. O. True, '05; W. Turner, '05; E. E. Woodbury, '05; F. R. Batchelder, '06; C. T. Bartlett, '06; S. T. Carr, '06; J. J. Cartagena, '06; E. P. Chase, '06; G. L. Davenport, Jr., '06; C. A. Farwell, '06; J. W. Kahn, '06; W. J. Knapp, '06; R. Seyms, '06; and P. B. Stanley, '06. No attempt was made to have it anything more than a reunion of the later graduates around Pittsburg. We expected G. C. Simpson, '06, from Columbus, Ohio, but for some reason he did not turn up.

After the dinner, Davenport, with a Tech Song Book, presided at the piano for a while, and later Crowell entertained us with various selections. After chatting awhile, Turner led a "We are happy," and the crowd broke

up. During the evening, Newbury, '98, Davis, '03, Koppelman, '04, Turner, '05, and Bartlett, '06, were elected a committee to confer with the Alumni Association here in Pittsburg, and to arrange for future meetings of a like nature. We have to thank Bartlett and Stanley, who arranged the dinner, for a very pleasant evening, and hope that the committee was not elected in vain.

The Income Fund, which has already begun to give to the Institute the aid which it is designed to afford, has been chiefly subscribed by the classes preceding 1906. The Income Fund Committee did not formally solicit our class for pledges to the fund, as its campaign was practically ended before our graduating. Many 1906 men have signified their wish to join the good work, and the Committee, learning this, has expressed its appreciation of this loyal spirit. It will gladly welcome subscriptions from 1906, and will co-operate with our secretaries in every way in securing from our class as adequate an expression of our desire to assist the Institute as our means permit.

The Income Fund, it will be remembered, was called into existence by the agitation against the proposed merger with Harvard two years ago, when it became necessary to prove that the Institute was financially able to meet all reasonable demands of the future. In June, 1906, the fund amounted to more than $275,000. The wants which the fund was calculated to supply are very real and pressing. To borrow the words of the committee, they are:—

1st. Additional land and buildings.

2d. Money with which to pay such salaries as are necessary to command the services of the best men for the instructing staff.

3d. Additional laboratory equipment in practically every department.

The Institute needs all the financial aid available, and there is every reason for 1906 to do its share. Accordingly, if those men who feel they can afford it will please address either of the secretaries, they will be furnished with information, blanks, etc., by the Fund Committee.

It is a good cause, and every little helps.

It may have been remarked that the constitution, in so far as

it applies to the election of officers, has been allowed to lapse. This was done in order that the machinery of the class work after graduation might be gotten fairly under way before a change was made in organization.

To be loyal to the Institute, we must keep our class organization strong. To have a strong class organization requires the interest of the members. Members take interest only when something is being done by the class. No one cares to be busy unless there is some real work in sight and a definite, practical object to be gained. It is, therefore, evident that the problem of organization brings with it the question of what particular life-work our class proposes to take up for its alumni career. Before any change is made, the matter is open for general discussion. The secretaries wish that the members would write to them, and state their opinions on the subject.

Of the classes previous to 1906, some hold annual elections, others do not. Some elect their secretaries annually, others make no change. 1906 is the only class with a resident and non-resident secretary. Our class is large in number, reaching nearly 600. If it is to do anything or engage in any work, there must be a sufficient number of officers to serve the class efficiently. Any system of government should allow distribution of the work, so as to bear lightly on each officer. If no officer were unduly burdened, it would be possible to hold each one responsible for the performance of his proper duties. Each one could then do justice to the work allotted him.

We have ties of association and relations now existing between us all which make our class a well-fitted and valuable body to perform work. Our class organization should be such that, when the work presents itself to be done, it will not be a case of one or two members rising to the occasion, but of a sufficient number of officers being found in readiness to perform their parts.

Members are urged to give their attention to the above points.

BOOK REVIEWS

PRINCIPLES AND PRACTICE OF SURVEYING

The book on Plane Surveying published by Messrs. Breed and Hosmer of the Civil Engineering Department last year is an excellent example of a text-book which has been evolved from extended experience in teaching and in practical work combined. It is a rare thing, especially in civil engineering, to have a text-book prepared by men who have been teachers as well as practical civil engineers. We have text-books written by teachers whose lack of practical experience leads them to put much stress on problems and methods of work which practice has long discredited. We have the so-called "self-made" civil engineer issuing handbooks, full of rules of thumb and minute directions for very special work, without any proper explanation of the fundamental principles underlying the applied science. In haste to rush into print, it is quite common for new teachers to write text-books before they have been tried by the criticism of their pupils. The ideal method is to issue notes, have them corrected and criticised by the students through a period of several years. There is no criticism so searching as that which comes from the class-room. Both Mr. Breed and Mr. Hosmer have been teachers and practical surveyors and engineers ever since their graduation from the Institute. Their combined experience in practical work covers the entire field of surveying with the possible exception of practical mining work.

The use of fac-simile copies of actual field notes is an especially valuable feature of this book. I believe all the drawings in the book are fac-similes of pen drawings; it seems to me that this is an important item in conveying the idea of reality, and it is a great stimulus towards neatness of work. When a text-book is illustrated by engravings executed to a great extent mechanically, the student makes allowance for this fact, and never dreams of reaching the same excellence in his own work.

The arrangement of the chapters and the grouping of topics strike me as very suitable; and, while it differs from the generally accepted arrangement of a text-book on surveying, it is really in better sequence for study and reference.

The chapters relating to astronomical determinations and topographical surveying contain all that is necessary for the ordinary surveyor. It is possible, however, that a brief account of the methods of stadia measurements could profitably be added without increasing greatly the size of the book. The chapters on levelling and on transit work are eminently practical, and show extensive field experience. The chapter on plotting is new and complete. The standards of lettering and conventional signs are simple and effective.

On the whole, I think this is the best text-book on plane surveying in the market.

ALFRED E. BURTON,
Professor Topographical Engineering.

"TERRACES OF THE WEST RIVER, BRATTLEBORO, VT."

Proceedings of the Boston Society of Natural History. By ELIZABETH F. FISHER, M. I. T. '96, Associate Professor of Geology at Wellesley College.

This paper presents the results of a careful survey and study of an interesting succession of terraces formed, in no unusual way, by the meanderings of a stream during periods of erosion. This investigation was made attractive by a recent theory of Hugh Miller and more elaborately discussed by Professor W. M. Davis. The theory accounts for the wanderings of the rivers at successively lower and lower levels, the changes of direction being determined by rock ledges. It was one object of the survey to determine whether this was exemplified in the succession of terraces at Brattleboro, Vt., and the test has sustained the theory. In the process of terrace formation Miss Fisher observed that another action had taken place, not defined by the theory. This action has been called by Miss Fisher the *partition process* which is caused

at times by the division or partition of the stream into two or more courses and the production of an island between the branchings. The work may be carried so far as to produce a plain which Miss Fisher has called a *partition plain*, the development of which she has described. It is in this portion of her paper that the publication rises to the importance of a positive contribution to science, for it has not been so completely defined and thoroughly illustrated in other publications. It should be noticed that the careful survey with the transit was made by Miss Fisher personally, and this is well recorded in a map showing the river terraces at Brattleboro, with the outcrops of rock indicated upon it. This map is probably the most detailed and accurately constructed map that has been made of any location for the purpose of showing this phase of river action. She also gives eight plates representing different stages in the development of the terraces, and three photographic illustrations of the features described. The care and thoroughness with which this work has been done and the clearness of its presentation are such that the paper will have a standard value with all students of river terraces.

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FRATERNITIES AND THEIR PLACE IN INSTITUTE LIFE

One of the most important problems of the Institute to-day, and one that has been widely discussed, is how to provide its students opportunities for social development in conjunction with a thorough technical training. It is generally conceded that technical proficiency is not enough to insure the highest success. A man must not only be a good engineer, he must also know how to deal effectively with men. While few would question the value of the scientific training that is given to Tech men or desire that its standards should be lowered, many do regret that our graduates are often deficient in those qualities that make for leadership. Anything that would increase their efficiency should be fostered by the authorities.

One phase of this subject has so recently been emphasized by Mr. Litchfield in an article in the October number of the REVIEW, in which he makes a plea for "An Apprenticeship for Business Responsibility," that it seems an opportune moment in which to draw attention to an institution which has been for many years a feature of the life of Technology, and which has been a force working in the desired direction. I refer to fraternities.

To understand the position of fraternities to-day, it is

necessary to know something of their history. The earliest Greek letter secret society, the Phi Beta Kappa, was founded at William and Mary College, Virginia, in 1776. The meetings were of a literary character, and at them essays were read, orations delivered, and subjects debated. Its secrecy consisted in a ritual, motto and grip, with a pin as an outward emblem. In 1831 its secrecy was abandoned, and the society assumed the character that is so well known to-day, membership being confined to honor men, usually of the Senior Class.

The fraternity system as it exists to-day dates from 1825. In that year a society called Kappa Alpha was formed. During the next few years other fraternities sprang into existence, but the movement was confined to the East until 1835. By 1840 the system had become national. To-day there exist thirty-one college fraternities for men, with one thousand active chapters distributed among the colleges and universities of the land, with a total membership of 180,000. With the growth of the fraternity system have come the chapter houses or lodges, numbering approximately 660, of which 290 are owned. The value of fraternity property of all kinds is estimated at from $4,000,000 to $5,000,000.

Before the Civil War there was in most fraternities no central organization for the general supervision of fraternity affairs, the chapters being bound together merely by a common name and certain customs and traditions. As the fraternities grew in size and influence, the need of better organization became imperative, and led to the holding of conventions, usually annually, delegates being chosen to represent the various chapters. These conventions generally possess supreme legislative power, although the administration of the fraternity, and at times the judicial functions, are vested in a council consisting of prominent alumni.

With such an organization, each chapter forms one link in a chain. The council endeavors to make every link a strong one by close supervision, and the chapters in turn have a pride in standing well in the eyes of the officials and the fraternity at large.

With the spread of the fraternity idea it was to be expected that criticism would develop. Although some of this criticism was well founded, the major part was entirely unjustified. As an illustration, I may mention the outcry against the secrecy of fraternities. It is true that the meetings are open only to members and alumni, that the constitution, motto, and grip are carefully guarded. With these exceptions there is in most cases no attempt at secrecy. The chapter houses are open to friends, and guests are entertained there as in any private home or club-house. Moreover, the song book, histories, monthly journal, and fraternity catalogue are always at the disposal of the public.

Whatever criticism may now and then be heard, the fact remains that the fraternity has become a fixture and a decided factor in our American scheme of education. This is evident from the rapid growth of fraternities and the powerful and active support of the alumni membership, including, as it does, many of the most prominent and influential men of this country. It is, therefore, of interest to learn for what this institution stands and the influence that it aims to exert. Something of its object may be gathered from the name fraternity, "a banding together for mutual interest and affection, a brotherly regard and sympathy for one another, regardless of relationships by blood." The fraternity brings the college boy into close association with a group of his fellow-students, every one of whom is bound to work for the best good of every other member. Literary, professional and debating societies,

though excellent in their way, have none of the peculiar qualities that make the strength of the fraternities. In them students are associated with one another, but the tie is a loose one, and carries nothing of the obligation of one member to another which is such an important feature of the fraternity bond. As a consequence, they cannot develop to the same degree comradeship and mutual helpfulness during the college course, nor can they have the same influence in perpetuating the interest of their members in their Alma Mater after graduation. It is a custom of the fraternities in many colleges to hold at commencement time reunions which bring back yearly to the college many alumni and former students who would otherwise rarely revisit the school, and who are thus kept in closer touch with its development and needs. The fraternity connection is thus often the link which binds the graduate to his college.

If fraternities are of benefit to the college man, they must be to a still greater extent to the Technology man, who has so few social opportunities. Since the Institute does not provide dormitories and many of the students are forced to seek lodgings in boarding-houses throughout the city, where the influences are often not of the best, any organization that offers to even a few students home environments should be welcomed. The fraternities, especially those maintaining chapter houses, afford their members a good home with attractive surroundings, congenial companionship, and plenty of wholesome food, all at a moderate cost. Furthermore, the responsibility that the men feel for the reputation of their chapter is, I believe, an incentive to right living and good scholarship.

It is occasionally asserted that the fraternity houses at the Institute are frequently places for riotous living, and that the life in them is detrimental to scholarship. These charges

are usually made by men who have neither enjoyed the advantages of fraternity life nor investigated the conditions that actually prevail. The criticism is the more serious because of the injustice it does to a large number of young fellows who are striving to uphold the ideals of their chapters and of the Institute, and who desire to win the respect and regard of the Instructing Staff and the student body. While there have been in the past a few chapters that did not frown on drinking and dissipation, and though there are one or two such to-day, I know, from actual observation and through consultation with representatives of the chapters and their alumni, that in the majority of fraternity houses either no liquor of any kind is permitted, or beer only at smokers and reunions. Out of fourteen chapters possessing fraternity houses, five allow no liquor of any kind in the chapter house, seven allow beer only on special occasions, while two have no rule in regard to the matter. For a Freshman who has any tendency towards dissipation the daily comradeship of a group of fine fellows, all interested in his welfare, must assuredly be a more helpful influence than the life in an ordinary boarding-house. And it is especially during the first years of his Institute course, when there is a danger that his newly acquired freedom and independence may lead to excesses, that the fraternity proves of unquestioned value.

Perhaps the most satisfactory way to meet the criticism concerning the detrimental effect of fraternity life on scholarship is to draw attention to the position that the fraternities themselves are taking on this question. The spirit that pervades most of the chapter houses is one of serious work. There is frequently a rule, either written or unwritten, that all music and noisy forms of amusement shall cease at eight o'clock, so that quiet shall prevail for the benefit of those desiring to study. Moreover, in most chapters it is customary

for two or three of the upper class men to examine the five weeks' report of standing of their members in the Freshmen and frequently the Sophomore classes, and, whenever the record is in any way unsatisfactory, to bring the requisite influence to bear to improve it. That important work has been accomplished in this way, the Dean and various members of the Instructing Staff can bear witness. The fraternity man has, undoubtedly, more distractions than a student living by himself outside, yet there is nothing about the life in a fraternity house that should interfere with the maintenance of an excellent record. Moreover, those very distractions tend to keep the men mentally refreshed, active, and alert, and frequently are of a nature to supplement to advantage the essentially technical training of the Institute.

In this connection I wish to draw attention to the fact that many of the fraternities offer their members some opportunities for training along literary and administrative lines. The policy pursued differs in the various chapters, but about half of them make a literary program an important feature of their meetings, and endeavor in this way to give some practice in the presentation of papers, in debating and extemporaneous speaking. It is to be regretted that this practice is not universally followed. In all chapters an excellent chance is given to become familiar with parliamentary procedure, and the frequent informal dinners and alumni reunions afford some training in after-dinner speaking. The administration of the chapter houses is based on sound business principles. In most cases the management is intrusted to two committees, one to take charge of the house and the other of the table. The former looks after the leasing of rooms, the collection of rents, and the payment of the running expenses, including the wages of servants: the second has supervision of the table, including the purchase of supplies. Both

committees are responsible to the chapter, and their accounts are audited. The men recognize the value of the experience gained in serving on these committees, and are glad to share in the work as far as their time permits. In a few cases it has been found that personal supervision of the table, including daily marketing and planning of the meals, demands more time than a student can well afford to give. Consequently, in these cases this important work has been put into the hands of a steward or a housekeeper.

The growth of Greek letter societies at the Institute has been a steady one. In 1885–86 the membership was 52, or 8.5 per cent. of the student body, while in 1905–06 the membership had risen to 335, or 22.4 per cent. At present there are sixteen fraternities represented. Fourteen of these support chapter houses, all situated in the most desirable residential districts. Nearly two hundred men, or 55 per cent. of the total fraternity membership, live in these chapter houses, the average cost for board and room being between $35 and $40 a month, a sum not much in excess of that paid by most of our students for less desirable quarters. Of these houses, four are owned, and the remainder leased. That so few are owned is in part due to the agitation of the question of the removal of the Institute to a new site, most of the chapters preferring not to invest in property under such unsettled conditions.

If it is acknowledged that fraternities at the Institute contain much of benefit to their members, there remains to be considered the important question of their influence on the general student body. The fear has been expressed that fraternity life may tend to "cliquishness" and endanger the splendid democratic spirit that has always been characteristic of Technology. There seems to be little ground for such anxiety at present, and there is small likelihood that

the relations between the fraternity and non-fraternity men will ever assume the strained and unnatural attitude that unfortunately exists in some colleges. The Institute is a professional school where the men are animated by a definite purpose, and the seriousness of the work leaves them little time for social jealousies. Fraternity and non-fraternity men are found working together in the various student activities, such as the *Tech*, *Kommers*, Show, athletic meets, Class Day, and so forth, and the testimony that I have gathered indicates the friendliest feeling between the two sets. What is needed at the Institute to foster a democratic spirit and to draw all groups together is a club-house where the men can gather for recreation and general sociability. This need will be supplied when we have the Walker Memorial. Until then it is natural for fraternity men to withdraw to their chapter houses, where they find attractive and comfortable surroundings and congenial companions. These advantages they show a disposition to share with those outside their circle, as is apparent by frequent informal smokers, at which are to be found many non-fraternity men and members of the Instructing Staff, as well as representatives of other fraternities. The spirit of good fellowship that prevails at these gatherings is an evidence of the good feeling that exists among all classes of students at the Institute.

GEORGE V. WENDELL, '92.

RECRUITING

As an exercise in paragraph writing, in the first year English Composition work this term, two hundred and fifty Freshmen wrote briefly answers to this group of questions: "How did you, having decided upon a technical education, come to choose the Institute from among technical schools? Was your choice mainly your own or that of parents? Had you or your parents acquaintance with graduates of the Institute? Was the choice influenced by school-mates or teachers?" Although the answers were not definite enough to be of statistical accuracy, and probably were further deficient because the boys could neither understand nor remember the complex of influences that determined the choice of their college, these paragraph replies, especially in points wherein they generally agree, give interesting and, it may be supposed, trustworthy information. Several impressions derived from reading the replies may be of interest to Technology graduates.

Noticeable, first of all, is the indication that the choice of their college was determined rather more commonly by the boys than by their parents. Many parents are reported to have directed the choice, being, in several cases, themselves former students or graduates. A considerable number, however, merely suggested or urged, without determining a choice of the Institute; and a very large number are reported to have acquiesced, with more or less warmth of approval, in the son's selection. A few are credited with a rather ignominious indifference; and a very few seem even to have objected. Of these last, two are apparently unreconciled; a third was converted by his son's assurance that

he "meant business," and so belonged in Tech; another, converted from a preference for Yale, insisted on Tech when the boy, reciprocally, became converted to Yale. Possibly these boys have often supposed themselves responsible for a choice really that of their parents; but the enthusiasm in the replies would seem to indicate a real initiative and, to an unusual degree among college sub-Freshmen, preference of career and definiteness of purpose.

The determining reasons are, in almost every case, many. An obvious one for a considerable number is neighborhood; twenty include it as one among other influences; twenty-five call it the determining reason. Curiously few, in speaking of the Institute as the only college near enough for them to attend while remaining near or living at home, seem to have considered engineering courses at Tufts or the Lawrence Scientific School, the Sheffield School or Worcester Polytechnic.

"General reputation" is the consideration most commonly mentioned. Very many assign this reason without more definite explanation; a few allege it as the sole reason; some as the initial influence, more as the determining reason. That "general reputation" spreads far is evidenced by the fact that one student was thus attracted from South America; that it may, though vague, be influential is shown by the fact that two students were dissuaded by it from a previous choice of other schools.

An appreciable element in the "general reputation" of the Institute is the newspaper paragraph. Mention is made by several of particular news items that were to them of significance influential in their choice,—items about the foreign government pupils, about the United States Government pupils at Tech, about "the feats of Tech graduates," or Mr. Edison's remarks in the *Sun*.

The catalogue is mentioned by some half-dozen replies. One sent by a cousin to an Egyptian boy dissuaded him from his previous choice, Cornell. One English father, in doubt, was confirmed, the son says, by the Institute "prospecti."

Among personal influences, surprisingly frequent mention is made of that of schoolmates, boys intending to enter Tech who influence their classmates to come also, or boys already undergraduates in Tech who influence friends still in school. Of such many are mentioned as initiating the writer's choice, still more as determining, a few even as dissuading from some previous choice,—from Cornell, from Yale, from Lawrence Scientific, which was urged by the school principal for the benefit of its college life.

The influence of school-teachers is considerable in determining a boy's choice of his college. With some boys,—one a German, another a Spanish-American,—the teacher initiated the selection; in a large number of cases the advice of teachers was decisive. A teacher of English is reported solely to have determined one boy; another teacher, graduate of Dartmouth, was similarly influential; one dissuaded a boy from previous choice of the University of Pennsylvania; and another dissuaded an Ecuador boy from technical education in Paris. Two teachers are reported to have advised against Tech, one "because it is too hard," a second because he preferred Dartmouth, "though he acknowledged the high standard of Tech." One teacher recommended Tech only as supplementary to previous, academic training.

The personal influence much the most frequently mentioned is that of the Technology graduates. Of the parents who directed their son's choice, several were graduates or former students, and very many were influenced by acquaintance with graduates. Of the boys responsible for

their own choice, numbers declare acquaintance with graduates the initial reason for their choice; and, among these, two were Spanish-American, one a Belgian, and one a German. Graduates are mentioned as decisive influences in a great many cases, in eleven of which the graduates were brothers to the boys so persuaded. Foreign pupils are frequently mentioned as sending to Tech other boys of their own nationality. Graduates are in some cases said to have changed a previous choice, one dissuading a Harvard parent from sending his boy to the Lawrence Scientific School. One boy came to choose Tech because his sister was acquainted with Technology graduates.

Several contributory influences were mentioned, hard to classify among any of the previous groups. Three answers declare, rather desperately, that among technical schools the writers chose Tech because they "didn't know any other"; one writer asserts, refreshingly, that he came because it was "so hard to get in"; another, cautiously, that he hasn't chosen any engineering course yet, and Tech gives him the widest leeway for changing his mind; another, confidingly, that he was sent to the Institute because papa knew Mr. Rand.

An impression disconcertingly emphatic is the almost invariable insistence on money. That a boy should eagerly desire a profession which will secure for him as promptly as possible capacity to secure an honorable living is completely gratifying; but it is seriously to be remarked that, for the undergraduate mind, money seems to have an appeal to the exclusion of any consideration of human serviceableness or of intellectual delight in knowledge efficiently applied.

Most remarkable is the degree of influence for good or for evil exercised by the Institute graduates. It is demonstrably no mere piece of pedagogical piety to say that the name and

success of Technology depend mainly on the conduct of the alumni,—on their willingness to acknowledge and their eagerness to reward the service the Institute rendered them in training them. Those who cannot yet contribute largely from their earnings can render service none the less genuine by enthusiasm and sacrifice in maintaining *esprit de corps* in graduate meetings and associations, in extending by every legitimate means that subtly influential "general reputation," and in conducting, unofficiously, the constant recruiting which should send to Tech the most promising and desirable boys of scientific taste out of every community.

HENRY L. SEAVER.

A SKETCH OF PROFESSOR CROSBY'S WORK, THIRTY-FIVE YEARS ASSOCIATED WITH THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY

It is understood that after the present year Professor William Otis Crosby is to devote himself to original research and to expert work. These have been such important features in his past activity that it seems to be an appropriate time to notice them in connection with his work as a teacher, now that he is about to relinquish the latter.

He first became known to the Institute as a student in 1871, but was occupied in mining in Colorado the following year, and returned to the Institute in 1873. The Faculty gave him credit for the studies he was making until he became a regular student, and graduated in the class of 1876 in Natural History, as Course VII. was then called. His ability as an investigator was brought before the Faculty of the Institute by his graduating thesis upon the "Geology of Eastern Massachusetts."

He was assistant in palæontology in 1877, and in 1878 was made assistant in geology and palæontology. At that time he began to teach classes in geology and mineralogy. His work as a teacher of geology was much benefited by his work in research. Each day when he returned from his field studies he brought with him specimens which gave character and practical value to his work as instructor. At first the Institute possessed no geological collections of value, nor could it afford to make appropriations for their purchase, but he accomplished much by his success as a collector. The district about Boston is a rich field for one in

quest of the different kinds of rock specimens. These he gathered until he has been enabled to place before each member of his classes selected specimens of each of the leading kinds of the rocks of the globe. These have been studied in classes under his personal direction, and the students have thus acquired a practical knowledge of their characteristics. Thus his instructions have been conducted in the fullest spirit of the educational work at our Institute.

Professor Crosby has been called a born collector, but the writer thinks of him as an experienced, enthusiastic, and scientific collector. His gathering of the numerous specimens of the characteristic rocks of so many species in Eastern Massachusetts has had another bearing upon his work at the Institute. Exchanges were freely made, and in that way he acquired for the Institute a considerable amount of material for the collections in mineralogy and structural geology. The collection in structural geology which has been made by him and is now at the Institute is one of very unusual value for teaching, and men in other institutions have frequently spoken of it with great admiration. A large and representative collection of ores and non-metallic products of the mining regions west of the Mississippi River, including Alaska, has been made by the individual labors of Professor Crosby with little expense to the Institute. The collection of minerals as it was transferred by him to Professor Warren was well supplied with excellent material, considerable of which was collected by him at the various mineral-producing regions. His journeys were extensive; for the region about Boston gives almost no specimens considered by mineralogists suitable for a collecton. The Institute also became able to make appropriations which assisted Professor Crosby in making journeys and in the purchase of foreign materials not accessible to a collector in

this country. But it is largely due to Professor Crosby's industry and generosity that the Institute owes its excellent collections in mineralogy, lithology, structural geology, and especially in economic geology.

Professor Crosby's researches upon the "Geology of Eastern Massachusetts," which he began before his graduation and still continues, make an essential feature in his life-work. The geology of this district is of such an exceedingly complicated character, and the study of it requires such familiarity with many of the most difficult problems, that one must necessarily devote a large amount of time to its interpretation. He has been unsparing in his efforts in this direction, and it can certainly be said of him that no person has ever known all the details and individual features of this region so intimately as Professor Crosby. In this way he has contributed much to the advancement of the science of geology. He acted as assistant in mineralogy and geology for the Boston Society of Natural History for more than twenty years, and the Institute collections were much enriched by mutual agreement of the two institutions and his united labors. The Boston Society of Natural History is now publishing his continued work upon the "Geology of the Boston Basin," in eight parts. Three of these parts have already been published, the fourth is nearly ready for the press; but the remaining four parts are yet dependent upon the continued activity of their author. It will thus be seen that Professor Crosby is now to have a better opportunity for completing this monumental piece of geologic work than he could have had if he were to have continued to give instruction to the classes at the Institute. When this is completed, the Institute will have even greater reason than it has at present for being proud of the labors of one of its active scientific men.

Also Professor Crosby has been sought for a large amount of expert work as a practical geologist. In addition to the numerous services he has rendered to mining companies he has been the geologist of the Metropolitan Water Board, and for the most important work of the New York Board of Water Supply for Greater New York.

Professor Crosby is emphatically a Technology man. Here he has been a student, a student assistant, and graduate. He has been department assistant, instructor, assistant professor, associate professor, and full professor, thus filling in order the complete line of appointments which the Institute can offer to any man in active work. His uniform good health and his enduring strength, together with his relief from teaching and his established rank as a man of science, promise much for his further usefulness.

WILLIAM H. NILES.

REGINALD ALDWORTH DALY

On the 12th of March Dr. R. A. Daly, of Ottawa, was called to become Professor of Physical Geology at the Institute, and Dr. Daly has accepted the appointment, to take effect Oct. 1, 1907. The new chair has a twofold significance,—it marks the importance of earth physics to engineers and inaugurates the establishment of a research laboratory of physical geology at the Institute. The policy of the Department of Geology is to serve with as great efficiency as possible the Courses in Mining and in Civil Engineering. The main work of both these professions deals with physical geology in all its phases.

The man called to occupy this post is a combined scholar, field worker, and thinker of new principles. He is the product of the example of two great masters in geology who were his teachers,—Josiah Dwight Whitney and Nathaniel Southgate Shaler. From the former Daly won inspiration concerning men and books, from the latter the point of view which sees the earth as a physical laboratory. From both of them he learned teaching, especially from Professor Shaler, who was the most successful teacher of geology this country has produced. Dr. Daly has shown in all his work the inspiration of Whitney,—in his love of books, his careful thoroughness in library research, his wide learning in the scholarship of Europe. On the other hand, Professor Shaler's guidance is evidenced in his field work. Everything which Professor Daly has published has been based on extended field investigation. It is the kind of investigation, moreover, which attacks problems, not the sort which merely maps areas. He has a horror of what he aptly calls

"stamp-collecting" in geology,—merely recording unrelated facts. Beginning in the mountains of New England, he attacked without hesitation the most profound problem in geology,—the origin of granite. His field work has since included Nova Scotia, Labrador, the Caucasus, Italy, Switzerland, Germany, France, and Great Britain, a section six hundred miles long in the north-western Cordillera, and Mexico.

Dr. Daly was born on May 19, 1871, at Napanee, Ontario. He graduated from Victoria College in Ontario in 1891. At Harvard he took the degree of Master of Arts in 1893 and Doctor of Philosophy in 1896. In 1896 he was awarded the Parker travelling fellowship, and studied with Rosenbusch, Goldschmidt, Suess, Penck, and Fouqué in Heidelberg, Vienna, and Paris. From 1893 to 1895 he assisted Professor Shaler in his famous course, "Geology 4." From 1898 to 1901, as instructor, he was occupied at Harvard with routine teaching of elementary courses in physical geography. He developed during this time an original course in Oceanography, which was given for three years to Harvard classes.

His summers were always spent in original field work, which was productive of valuable publications. In 1898 he travelled across Russia with a party of geologists of the International Congress. He made special studies in the Caucasus mountains, and was privileged to spend some days with Sir John Murray in oceanographic work on the Black Sea. Three papers were published as a result of this journey, dealing with "the Caucasus," the "Russo-Siberian Plain," and "Palestine as illustrating Geological and Geographical Controls." The summer of 1899 was given to a study of Nova Scotia, which resulted in a bulletin entitled "The Physiography of Acadia." In 1900 Professor Daly accompanied Professor Delabarre, of Brown University,

as geologist in the latter's expedition to the north-east coast of Labrador, and a geological report of this reconnaissance was published by the Museum in Cambridge.

In June, 1901, Dr. Daly resigned his position in the university to become geologist on the Canadian Commission appointed to determine the boundary between the United States and Canada. He has since become widely known for his writings on the "Mechanics of Igneous Intrusion." His theory is, in brief, that deep-seated igneous magmas originate in a basic magma of uniform composition analogous to basalt, or gabbro. This magma, on rising, stopes its way through overlying rocks, and assimilates the materials stoped out. The process of assimilation, aided by internal differentiation, produces the many varieties of composition observed in nature, from granite to gabbro or from rhyolite to basalt. As a strong champion of "assimilation" in geology, he has held a unique place among American petrologists, who have mostly been under the influence of the German and Norwegian "differentiation" schools of thought, in contrast to the French, which inclines toward extreme "assimilation." Daly, however, has adopted a middle course, based on his own examination of many hundred square miles of rock. While he is thoroughly trained in the microscopical and chemical methods of the petrographer, his reasoning is based primarily on what the field shows as to the physical relations of one rock body to another. In this he has held fast to the broad principles taught by Dr. Shaler, and has not allowed himself to be warped into merely narrow laboratory methods, which by themselves are fatal to a strong grasp of the meaning of the earth's crust.

Professor Daly's most important publications, besides those already mentioned, have appeared generally in the *Journal of Geology* and in the *American Journal of Science.*

They deal with "the classification of igneous intrusive bodies," "sections in the Cascade Mountains," "Ascutney Mountain, Vermont," "the porphyritic gneiss of New Hampshire," "the accordance of summit levels," and "the limeless ocean of pre-Cambrian time." He published two mineralogical papers of fundamental importance in the Proceedings of the American Academy in 1899. These were republished in French by the Mineralogical Society of France. They were the product of two years of work in foreign laboratories on the optical characters and etch figures of the amphiboles and pyroxenes.

T. A. JAGGAR, JR.

THE TECHNOLOGY EXPEDITION TO THE ALEUTIAN ISLANDS

Dr. Daly's coming to Boston is part of a movement at the Institute to establish a Research Laboratory of Physical Geology. Funds for the purchase, installation, and maintenance of seismographic apparatus have been subscribed. The laboratory will deal with the engineering problems of earthquake and volcano lands, with direct measurement and record of earth movements and processes, and with exploration directed to the same ends. It is hoped that a substantial fund to maintain the laboratory for ten years will soon be assured, and that this money will come from citizens of Boston.

The research work of the laboratory will be begun by an expedition leaving Seattle in April, 1907, to explore the Aleutian Islands. This exploration is financed by Boston business men. The scientific party will number six or seven, and will be led by Professor Jaggar as geologist. Professor H. V. Gummere, head of the Department of Mathematics at the Drexel Institute in Philadelphia, will be astronomer to the expedition, and will have the direction of magnetic work. Other members of the scientific staff are Professor A. S. Eakle, of the University of California, as mineralogist, and there will be a physician and two or three student assistants. Messrs. D. B. Myers and H. P. Sweeny, of the class of '08 in Course III., have already been selected as members of the party. The main object of the scientific work will be a study of Aleutian volcanoes, and the evidences of seismical activity shown by elevated or depressed shore-lines. Some attention will be given to magnetism, to determine local disturbances along one of the longest volcanic chains in the world. Measurements will be made with the land dip-circle, compass, and transit to determine variation, dip, and intensity.

Travel will be by auxiliary schooner from Unalaska to Attu and return. There are fifty-nine volcanoes reported in the entire

chain, many of which are unknown and unnamed. They range in elevation from four to nine thousand feet or more. Many of them have a record of activity. The volcano of Akutan near Dutch Harbor was reported active in March, 1907, and in 1906 a new extension of Bogoslof was visited by officers of the revenue cutter "Perry." This had been built up by explosions from beneath the waters of the sea during recent activity. As these volcanoes are all in United States territory, there is here an extraordinary opportunity for Americans to make a start in scientific volcanology. It is hoped the United States government will eventually add volcanometric and seismometric apparatus to stations of the Weather Bureau favorably situated for the purpose. Such measurements and records should eventually serve to protect human life and property. There is no place better suited to promote the invention and construction of reliable apparatus and the development of scientific methods of work along the lines suggested than the Massachusetts Institute of Technology.

GENERAL INSTITUTE NEWS

THE CORPORATION

A stated meeting of the Corporation was held on the afternoon of Wednesday, March 13. Five names having been presented by the Alumni Association through the Nominating Committee, and these names, in accordance with the By-laws, having been submitted in print two weeks in advance of the meeting, the Corporation by ballot elected the following term members, each to serve until 1912: George W. Kittredge, '77; Frank G. Stantial, '79; and George E. Hale, '90.

Reports were presented from the visiting committees on the Departments of Mechanical Engineering and Applied Mechanics and the Department of Modern Languages and English.

The following appointments presented by the Executive Committee were confirmed: beginning Oct. 1, 1907, Professor Reginald Aldworth Daly, A.M. and Ph.D., as Professor of Physical Geology; and Henry Louis Jackson, '05, Course V., as Instructor in Inorganic Chemistry for the rest of the year, to take the place of Mr. Rolfe who has been granted leave of absence for the remainder of the year.

The following memorial upon the late Samuel Cabot, prepared by Charles C. Jackson, was, in his absence, read by the President. The resolutions were unanimously adopted, and it was voted that they be spread upon the records.

SAMUEL CABOT

It is well worth while to set down upon the records some intimation of the quality and achievement of a man who, in his seventeen years of connection with the Corporation, has been of such essential service as has Samuel Cabot.

He was born Feb. 18, 1850. His parents were of our strong New England stock, whose traits persist from generation to generation, and who have given to the service of the community a succession of doctors, lawyers, and merchants of high purpose and attainment. His father was Dr. Samuel Cabot,

a man of large scientific attainment as a physician, surgeon, and ornithologist. From him especially Mr. Cabot doubtless derived his powers of close observation and shrewd deduction. His mother was Hannah Lowell Jackson, daughter of the Patrick Tracy Jackson who built the first Merrimack River Dam, when such an undertaking was far more difficult than it is now, and who with Francis Cabot Lowell started the manufacture of textiles at Lowell. Both parents were notably warm-hearted and philanthropic, and exerted themselves greatly to promote the abolition of negro slavery.

In 1866 Mr. Cabot left the Boston Latin School, and took the four years' course at the Institute. In 1870 he became chemist of the Merrimack Manufacturing Company at Lowell. In 1873 he left this position, and spent a year at Zürich, studying under Professor Emil Kopp, with whom he formed a warm friendship. On returning to America, he tried unsuccessfully to introduce a new chemical process, and then served a short apprenticeship in the office of his uncle, Colonel Henry Lee. In 1877 he and Mr. Nourse formed a partnership, and purchased a factory for making lampblack and ammonia in Chelsea. In 1878 he bought his partner's interest, and from that time until his death he devoted himself eagerly to perfecting his plant and to the investigation of the innumerable problems of industrial chemistry which suggested themselves to his ever-active mind.

His broad view of business requirements, as well as the quick sympathy which other people's difficulties always awakened in him, led him twenty years ago to devise and put in operation a remarkably successful system of profit-sharing which he administered with that wisdom and kindness which played so large a part in his nature.

In his life of experimenting he made inventions of great usefulness. His use of creosote oil as a basis for shingle stains was the foundation of a new and important branch of manufacture, and owed its extraordinary success to the thoroughness of his methods and his exceptional artistic sense. He discovered that a thin layer of eel-grass quilted between sheets of asbestos paper had extraordinary properties as a non-conductor of sound and heat, and was practically indestructible. He invented and prepared a cheap and efficacious disinfectant and detergent now in general use. In these and other branches of manufacture his originality and technical thoroughness led to remarkable success.

It is unusual to find a man so deeply engaged in business as Mr. Cabot, who, nevertheless, had so much leisure to devote to other interests. The Institute was very dear to him. Fourteen years ago he was appointed chairman of the Committee on the Chemical Department, and he was in-

strumental in bringing Professor Lunge from Europe to examine it. Our President says he "knew his department" to a very unusual degree, and on several occasions he helped it with money.

He had a profound belief in the importance of physical health to all other vigor, and, as a member of the Advisory Council in Athletics, he took great interest in all the students' sports. He gave a tract of land and twenty thousand dollars in money toward the purchase of more land for the athletic purposes of the Institute, and he gave his house in Brookline to be used as a dormitory. He established a fund for an annual prize for the greatest improvement in athletics, and gave a silver cup on which the names of the victors were annually inscribed. But beyond all this was the importance of his influence in maintaining a high ideal in sports.

His death was a great misfortune to the public, and especially to us, for he was contemplating one or two important plans for the students' benefit, and would doubtless have executed them.

Although he had good constructive faculty, and although his daily occupation was that of business, the predominant cast of his mind was scientific. He had the scientific man's capacity for wondering at the simplest things and for constantly using his imagination. He had, moreover, a strong discriminating taste for fine pictures and an accurate knowledge of the literature and history of the Elizabethan period. But the traits which endeared him so greatly to us were the possession of high standards with which compromise was impossible, a high disdain for meanness, a chivalric wrath, and a fearlessness in thought and speech. This latter characteristic led him to condemn harmful persons and things very freely; but he was never suspected of low motives, and the fundamental gentleness and generosity of his nature were such that he left no enemy.

Resolved, That through the death of Samuel Cabot the Massachusetts Institute of Technology has lost a counsellor in whose wisdom, high-mindedness, and devotion it has long been accustomed to place its confidence, and to whose high example and far-seeing generosity it owes the better fulfilment of the purposes for which the Institute was founded.

ALEXANDER S. WHEELER

By the death of Mr. Wheeler on April 13, at the age of eighty-seven years, the Institute loses one of its most devoted friends. An extended notice of Mr. Wheeler's services to Technology will appear in the next number of the REVIEW.

THE FACULTY

Professor Lanza, head of the Department of Mechanical Engineering, has recently been decorated by the King of Italy. For scientific activity he has been made a Knight of the Order of St. Maurice and St. Lazarus. The Order of St. Maurice was founded in the fifteenth century, while the Order of St. Lazarus was established in the eleventh century. The two were united into one order in the sixteenth century.

By the rules of 1868 this order rewards distinguished merit acquired in civil and military careers, in sciences, in arts, in commerce, and in industries.

Notice of the appointment was sent to the Italian ambassador at Washington, Baron Meyer des Planches, by the Italian Minister of Foreign Affairs, and then to the Italian consul at Boston, Baron Gustavo Tosti, who presented it to Professor Lanza, together with the emblem. This emblem, which is worn on a green ribbon, is the three-leaved cross of St. Maurice, enamelled with white and placed over the bifurcated green cross, the ancient insignia of the Order of St. Lazarus.

Professor Lanza was born in Boston in 1848, the son of Gaetano (born in Italy) and Mary Ann (Paddock) Lanza. He is a graduate of the University of Virginia, where he was for two years an Assistant Instructor in Mathematics. In 1871 he was appointed an instructor at the Institute, and in 1873 made a member of the Faculty. He has been in charge of the Department of Mechanical Engineering since 1883.

At a recent meeting it was voted that after this year the spring vacation be the first half or the last half of the week in which the 19th of April occurs, according as the 19th should fall in the former or the latter.

On the report of a sub-committee appointed to consider the question of the substitution of Spanish or Italian for French or German, it was voted that it is not necessary or expedient to make any general changes in the entrance examinations in languages, but

that, whenever adequate reasons are presented, substitutions may be allowed upon authority of the Committee on Petitions.

At the first meeting of the National Society for the Promotion of Industrial Education, organized November 16, Dr. Pritchett was elected president. The object of the society is to bring to public attention the importance of industrial education as a factor in the industrial and educational development of the United States. Charles R. Richards, '85, is the secretary.

Dr. Pritchett went, about February 1, to New Orleans with a party, and embarked on one of the boats of the United Fruit Company, fitted especially for this trip, which included Central America and the West Indies.

A revised edition of Professor Osborne's "Differential and Integral Calculus" has recently appeared. The old book has been rearranged and considerably enlarged. Professor George has prepared a new chapter on the Integration of Rational Functions, and Professors Tyler and Woods are also given credit for sharing in the work.

Professor Osborne has added a chapter on Series in the "Differential Calculus," and one on the simple applications of Integral Calculus. In both branches many examples illustrating applications to mechanics and physics have been added.

Professor Talbot spoke on Mendeleeff's work and its importance to present-day chemistry before the New England section of the American Chemical Society on March 29. The occasion was the seventy-fifth regular meeting of the society.

At the Chemists' Club, New York City, Professor Prescott lectured, March 9, before the American Chemical Society on "Applications of Bacteriology to Industrial Chemistry."

COURSES II. AND XIII.

The Faculty has adopted a considerable revision of the courses in Mechanical Engineering and Naval Architecture. By these changes one of the two modern languages formerly required is omitted. Applied Mechanics is brought back into the second term of the second year, and the allotted time for the entire course is

somewhat increased to allow more opportunity for recitation. The time allotment for the course in Steam Engineering is considerably increased, to give opportunity to study the principles of the modern gas engine and steam turbine. In Course II. there has been added a course in Power Plant Design. Sixty hours of the seven hundred and twenty released have been added to the course in English and History of the second year.

GIFT

Another gift of $5,000 has been received by the Institute for the maintenance of the Sanitary Research and Sewage Experimental Station. This station was founded in 1903, by a gift of $5,000 from some person who has remained to this day unknown to the authorities of the Institute. Each year a check for $5,000 has been received from the anonymous donor for the maintenance of the laboratory.

CAPS AND GOWNS

At a meeting of the Faculty held February 21 a vote was passed expressing disapprobation of the wearing of Caps and Gowns by the graduating class. In its last analysis the reason given for the action is that there is a lack of unanimity of opinion regarding the matter among those who have an interest in the subject.

This lack of unanimity of opinion is evident not only in the Faculty and in the Senior Class, but also in the other three classes and in the alumni. There are factions in each group of men, and there is not enough unanimity of opinion to assure the Faculty that graduation with Caps and Gowns would be a serious affair and would be continued by the other classes.

THE BEAUX-ARTS

Three Technology men passed the examinations given by the architectural department of the École des Beaux-Arts out of a large number of candidates. These men are William H. Crowell, '06,

Charles G. Loring, '06, and Paul F. Mann, '06, and were the only Tech men taking the examinations.

The splendid work of these men is better appreciated when the figures and conditions of the examinations are understood. There were seventy-eight foreign students taking the examinations, of whom only eleven passed. This number was divided into nationalities,—one Italian, one Roumanian, two Swiss, and eight Americans. Of the latter, one was from Cornell, two from Harvard, one from University of Pennsylvania, one with a travelling scholarship outside of college, and three Tech men. There were six Columbia men failed.

The examinations are difficult, there being only a limited number of foreigners taken in, and the competition is always keen. To add to the difficulties, many of the examinations are oral, and all are in the French language, making it very hard for an American in competing with the Latin races.

Crowell attended the Institute for two years, taking a special course. He won the Rotch travelling scholarship in 1905, and has been abroad since. He is known in the architectural department as a strong draughtsman, and his design for the scholarship, of an American Salon, was given very favorable comment in the architectural journals. He is married, and his home is in Boston.

Loring was graduated from the Institute with the class of '06, his thesis being a design for a sanatorium. He came to the Institute with a degree from Harvard. Mann was a member of the same class, but did not graduate from the Institute. He received a Bachelor's degree from Yale.

INSTRUCTORS' CLUB

The Instructors' Club dined at the Union on Feb. 14th, with guests from the Faculty and with Mr. James P. Munroe of the Corporation as speaker of the evening. Mr. Munroe's address on "The Relations between College Trustees and College Teachers" was followed by general discussion, especially of the proposed tutorial or preceptorial system, and how far it might be possible and profitable at Tech.

President Pritchett was the speaker at the dinner of the Instructors' Club held at the Union March 26. He told of his trip to Jamaica, Panama, and Porto Rico on one of the United Fruit Company's steamers.

TECHNOLOGY EMPLOYEES' MUTUAL BENEFIT ASSOCIATION

The association held a smoker at the Union January 31, with forty-two present. Professor Wendell, Mr. Blachstein, and Mr. Rand were the guests. A quartet from the Banjo Club, composed of Gerrish, '08, Sharman, '08, McGinniss, '08, and Sharp, '09, gave a musical program. The officers of the association are E. Edwards, president; F. W. Perkins, vice-president; F. G. Hartwell, secretary; and W. F. Wilton, treasurer.

NOTES

A series of lectures on Radio-activity and the Conduction of Electricity through Gases is being given by Professor Cross on Monday afternoons. These lectures are of a purely experimental character, and there will be no examination. The series is open to second, third, and fourth year students.

Mr. M. C. Whitaker, general superintendent of the Welsbach Company, gave a series of three talks on March 27–29, at 4.15 P.M., in 23 Walker. These talks were on "Factory Organization," "Cost Keeping and Accounting," and "Employer and Employee."

The investigations of the purification of Boston sewage made in the Sanitary Research Laboratory and Sewage Experiment Station of the Institute have been published as a public document by order of Congress. It contains a history of the sewage-disposal problem by C.-E. A. Winslow and Earle B. Phelps.

The Carnegie Institution has renewed its grant of $2,000 to Professor A. A. Noyes, of the Physical Chemistry Department.

DEPARTMENT NOTES

MINING ENGINEERING AND METALLURGY

In the department of mining and metallurgy the new room for metallography is now equipped with lantern and microscope for the examination of polished metallic surfaces and a galvanometer for measuring resistances. This laboratory has been provided with a steam pipe around the floor for keeping the cases dry and warming the room, and the room is ventilated by an electric fan.

The new Rowand Wetherell magnet has been installed, and is now working in a very satisfactory way for the separation of black sands and any other mineral mixtures which may need it.

The new glass table has been installed, and two of the students are making their thesis upon it, with the idea of measuring the water quantities and the slopes most advantageous for treating various grades of sand made by classifier for the purpose of separating quartz from galena.

Professor Richards's new pulsator has just been installed, and experiments upon it are now in progress. It appears to have immense capacity for treating sands, and the various difficulties that have been met with in adjusting and controlling it are being one by one met and overcome. Two students are taking a thesis on this.

In regard to graduates of the department, Professor F. H. Sexton, of Dalhousie College, Halifax, has just been chosen to be director of technical education and principal of the Central College of the Nova Scotia Institute of Technology in Halifax.

Professor Sexton has proved such an efficient and intelligent worker in his department of mining engineering and metallurgy at Dalhousie that he has won the confidence of the people of Halifax, as well as of the Nova Scotia government.

CIVIL ENGINEERING

Notice has already been given in the REVIEW of the fact that Professor Sedgwick and Mr. John R. Freeman, one of our alumni,

were members of the Expert Commission which considered last summer the sanitary problem caused by the location of the new line of the Chicago, Milwaukee & St. Paul Railroad through the watershed supplying the city of Seattle with water. The commission recommended the construction of some works to protect the water supply from pollution due to trains, and the work is now being carried on under the direction of one of our graduates; namely, Professor W. J. Roberts, class of 1891, now professor of civil engineering at the State College at Washington.

Professors Swain and Allen were in New York the first of the month in connection with the recent accident on the New York Central Railroad, having been sent for by the Railroad Company to look into the technical matters relating to the accident. Professor Swain appeared and testified before the coroner's jury, the grand jury, and the Railroad Commission.

MECHANICAL ENGINEERING

(Titles of Theses, 1907)

Arnold, A. B. Labbé, A. G.	Design of a Gas Power Plant.
Baker, J. M.	A Test on an Air Brake Rack.
Berliner, E. M.	A Determination of the Pressure Temperature Diagram of the Saturated Vapor of Completely Denatured Alcohol.
Bigelow, W. W. Hanford, W. G.	An Investigation of the Friction Loss in the Nozzles of a Steam Turbine.
Boles, E. D. Snow, E. B., Jr.	Investigation of Locomotive Springs.
Bowen, C. A. Jealous, A. R.	An Investigation of the "Slip" and "Creep" in a 350 H. P. Rope Drive.
Cutten, L. H.	Design of a Heating and Ventilating System for a High School Building.
Denmark, C. R. Mahar, J. T.	Performance of Ventilating Fans.

Dickson, V. H.	Efficiency of Cast Iron Indirect Radiators.
Dodge, P. Richardson, E. C.	Variation in Angular Velocity of Reciprocating Engines during one Revolution.
Eaton, C. A. Thomas, J. J.	Tests on Cast Iron.
Evans, E. C.	The Effect of Freezing and Absorption on Fire Brick.
Fales, O. G. Norton, G. R.	Stationary Test of a White Steam Automobile.
Fellows, J. H.	An Investigation of Air Brakes.
Freedman, L. A. Wetmore, L.	An Investigation upon a Gas Producer.
Kelly, E. F. Kudlich, R. H.	Duty Test on 72,000,000 Gallon Leavitt Pumping Engine of the Metropolitan Sewage System.
Keyes, R. E. Lawton, J. T., Jr.	An Investigation of the Effect of Different Percentages of Water and Cement in Crusher Dust Mortar.
Lightner, M. T.	Concrete Mixers, with Special Reference to the Effect of Violent Mixing on the Compressive Strength of Concrete.
Luce, B. P.	Speed Losses in Successive Counter-shaft Drives.
Lucey, W. S. Nicholl, J. S.	Subway Ventilation.
Mathesius, A. P.	Coefficients of Flow for Narrow Wiers with High Heads, Full Contraction.
Middleton, N. A.	Test on Taylor Gas Producer Plant at Boston Elevated Railway Company Power Station in Medford, Mass.
Miller, A. Ruff, D. C.	A Study of the Heating and Ventilating System of the New Christian Science Temple in Boston.
Miller, S. R.	Investigation and Comparison of the Different Methods of Vacuum Carpet Cleaning.

Moller, K. Robbins, D. G.	Test of 350 K. W. Koerting 2-cycle Double-acting Gas Engine of the Boston Elevated Railroad Company.
Nichols, B.	Test of a Power Plant at Waltham.
Nutter, C. W.	An Investigation of the Effect of Varying the Cutting Speed and the Feed on a Saw Cutting-off Machine.
Pope, A.	Boiler Tests with Peat as a Fuel.
Rambo, M. Thayer, R. E.	A Comparative Road Test of a Superheating and a Non-superheating Locomotive.
Randall, J. R. Rich, E.	A Study of the Stresses and Strains in Reinforced Concrete Beams.
Rayner, W. P.	The Effect of the CO_2 left in the Clearance Space of a Gas Engine, upon the Explosive Force, Time of Exploding, and the Mean Effective Pressure obtained.
Ripley, F., Jr. Squire, E. H.	Radiation Efficiencies of Air-cooled Engine Cylinders.
Rockwell, S. E. Webber, P. B.	Design of a Testing Machine for Subjecting Riveted Joints to Repeated Stress and an Investigation of the Effects of such Stress upon 2 Double-riveted Lap Joints.
Small, G. Turnbull, W. F.	Wind Pressure on Curved Surfaces.
Terrell, H. A.	The Effect of Superheated Steam on Cast Iron.
Udale, S. M.	Ozone Generators.
Wilkins, H. S.	Test of a Steam Power Plant.

ARCHITECTURE

The final awards in the recent competition among the fourth-year architects for the two $50 prizes offered by the Boston Society of Architects were made in March. Winsor Soule and Ernest F. Lewis were tied for the first prize for regular students, while Andrew N. Rebori won the prize for special students. Thirty-one drawings

were handed in. The problem was "A Monumental Entrance for an American Embassy in a European Capital."

CHEMISTRY AND CHEMICAL ENGINEERING

The instruction in inorganic chemistry of the first year has been modified for the present term, with a view to adapting the work somewhat more to the needs of the individual and to avoiding a slight duplication of instruction in the second year. The class is divided into two large sections, based upon the continuance or non-continuance of chemical subjects beyond the first year, as determined by the student's choice of a professional course. The lecture and class-room instruction of the two sections is so differentiated that in the case of the students in the engineering courses without chemistry, particular stress is laid upon those phases of chemistry which bear directly upon an engineer's experience, while in the case of the remainder of the class the subject is treated in a somewhat more detailed fashion for the benefit of later work in the same field. In the laboratory work a still wider distinction is made. For the student whose chemical experience will terminate with the first year the laboratory work is based on qualitative analysis, as in recent years. For other students the laboratory practice is founded upon a series of inorganic preparations, carefully selected to represent particular principles or noteworthy examples drawn from applied chemistry. The purpose of the course is mainly to acquaint the student with the chemistry of the metallic elements through the processes of manufacture, or purification, of materials so selected as to comprise representatives of the common metals, and less attention is, therefore, paid to either the quantity or quality of the product produced than to the understanding of the chemistry involved. The variety of preparations offered exceeds the number which any one student can be expected to complete, and the assignments vary with different students. Each student is expected to know something of the work done by his neighbor if it differs from his own. It is hoped that in this way the student will obtain a broader knowledge of inorganic chemistry than formerly, and will be in a better position

to undertake the work in qualitative analysis at the beginning of the second year, thus avoiding what has previously appeared to be a necessary review at the beginning of that year of some of the work done in the first year. It is too early to attempt to forecast the results of this change, but the prospect appears thus far to be bright.

The distribution of the work of the Department in portions of four buildings makes it difficult, as has often been emphasized, for the members of the staff to learn what their colleagues are doing. With a view to meeting this difficulty in some measure, and also to promoting desirable discussion of methods of instruction, a series of conferences have been arranged for the present term, which are attended by all members of the instructing staff. At each conference the member in charge of a branch of the department states the point of view from which instruction under his care is given, and gives a general notion of the methods employed, the talks being followed by a general informal discussion. At the first of these conferences Professors Talbot and Pope discussed the work of the first year, at the second Professor Fay spoke of the teaching of Analytical Chemistry, and at succeeding conferences it is expected that Professor Noyes will explain the methods of instruction in the recently extended class-room and laboratory work in Theoretical Chemistry, Professors Walker and Thorp the work in Industrial Chemistry, and Professors Moore and Mulliken the instruction in Organic Chemistry.

The students of Course X. are to have a short course in Industrial Water Analysis, to give a general idea of the problems a manufacturer has to meet in different parts of the country. Through the courtesy of the Hydrographer of the United States Geological Survey and of the Director of the Water Survey of the State of Illinois, twenty or more samples from Iowa, Ohio, Arkansas, Illinois, and Georgia have been obtained as typical waters. These added to as many more samples from the eastern Appalachians will afford an excellent opportunity to study characteristic features.

Students in the option in Heating and Ventilation of Course II. have in hand some thesis work involving air-testing problems, and

those in the course of Air Analysis, Course XI., are carrying on a study of the condition of the air in school-houses.

As president of the Boston branch of the Collegiate Alumnæ, which has invited the National Association to hold its quarter-centennial in Boston next November, Mrs. Richards addressed the New York and Washington branches in the January vacation, and also gave a course of six lectures at Teachers' College, Columbia University. She also spoke twice in Baltimore on "The Cost of Living" and "The Living Wage."

Mrs. Richards has a section in Social Economics at the Jamestown Exposition, for the Mary Lowell Stone Exhibit. Miss Stone was a student at the Institute in 1876–78. Mrs. Richards will also present, at its annual meeting, the report of the examiners having in charge the award of the $1,000 offered by the Naples Table Association. She is chairman of the committee.

Professor Fay has recently given a talk before the Engineers' Club of the General Electric Company at Lynn on the "Applications of Metallography." Professor Talbot spoke before the Worcester Chemical Society and also before the Chemical Society of the Institute on "Some Modifications of Old Notions suggested by Recent Investigations." Professor Walker talked to the Unitarian Club at Melrose on "The Pure Food Laws."

Professor Talbot was elected vice-president and chairman of Section C of the American Association for the Advancement of Science at the New York meeting in December, and a member of the council to represent the section at that meeting.

Mr. G. W. Rolfe was given leave of absence early in February to go to Porto Rico, where, as last year, he will superintend the working up of a sugar crop, and will remain in Porto Rico until the close of the season. The department was able to secure the services of Mr. H. Louis Jackson (1905) to take Mr. Rolfe's place as instructor for the remainder of the year.

The Seniors in Chemical Engineering and Chemistry are now busy with thesis work, reports of some of which will probably be made later.

MODERN LANGUAGES

A crying need of the language-teaching profession, especially in technical schools, has been met by the appearance from the press of Silver, Burdett & Co. of "A Scientific French Reader," by Francis Harold Dike, instructor of French at the Institute. This work has been adopted for use in the Technology courses in intermediate French.

Professor Vogel and Dr. Kurrelmeyer are writing an English-German and German-English Dictionary for the use of technical students and engineers. It is to contain popular as well as technical terms of current use at the present day. The authors are selecting the terms for definition from recognized text-books and scientific and popular periodicals.

THE UNDERGRADUATES

PROFESSIONAL SOCIETIES

Mechanical Engineering Society.—At the meeting of the society February 12, at the Union, Charles Garrison, a former agent of the DeLaval Turbine Company, spoke on "Steam Turbines."

At the meeting held March 13, Mr. H. W. True, of the True Gas Power System, gave a talk on "Gas Engines and Gas Producers."

Mining Engineering Society.—At the meeting of the society February 15, J. H. Leavell, '07, and R. W. Wilson, '08, gave some account of their experiences in mining. Leavell spoke on quicksilver mining in Texas, and gave a brief outline of some of his work at Bingham. Wilson gave a short talk concerning the recruiting and care of laborers in the South African mines.

Professor Lodge gave an address February 26 before the society at the Union on "The Cobalt Mining District in Ontario, Canada."

Chemical Society.—Professor Henry P. Talbot gave an address on "The Modifications of Old Chemical Theories by Recent Discoveries" before the society on February 20. The chief topic of the speech was radium and the various experiments that have been made with it.

President W. E. Lummus, of the Commonwealth Manufacturing Company, gave a talk to the society March 20 at the Union.

Architectural Society.—Winthrop D. Parker, '95, member of the firm of Parker & Thomas, architects, addressed the society March 15 on "The Architectural Aspect of the Jamestown Exposition."

Geological Journal Club.—At a meeting of the club held March 1 M. W. Hayward, '06, reviewed a paper on "The Texture of Igneous Rocks" by Cross, Pierson, Iddings, and Washington. The authors present a scheme for classifying rocks with regard to "Crystallinity, Granularity, and Fabric," and propose a number of new technical terms to designate various modifications.

W. T. de Steigner reviewed a paper by M. R. Campbell on

"Certain Rock Folds in Arkansas." Professor Jaggar explained a number of difficult points to those present.

CLUBS

Civic Club.—At the meeting of the club March 8 the debate was opened by a short speech from the chair on the affirmative to the question, "*Resolved*, That suffrage should be restricted by an educational qualification." Discussion was informal, and at the close a unanimous vote was obtained for the affirmative.

Mr. Charles M. Jesup spoke on Americanism before the club March 15.

Catholic Club.—The club held its regular meeting March 20 in 16 Rogers. The chief feature of the evening was a talk by Rev. Father Leahy, of St. John's Seminary, on "Science and Revelation."

Esperanto Club.—The club held a meeting January 8. The beginners' class met under the direction of Mr. T. P. Ogden, while the advanced class were addressed by J. F. Twombly. Then the classes combined in a general meeting. Nothing but Esperanto was spoken.

Rifle Club.—At a meeting of the club held March 11 the following officers were elected for the year 1907: president, C. G. Koppitz, '09; vice-president, C. Kurtzman, '09; secretary, C. P. Shillaber, Jr., '09; treasurer, C. D. Jacobs, '09; executive officer, E. R. Jackson, '10.

British Empire Club.—The Harvard Canadian Club and the British Empire Association of Technology held a joint dinner on March 27 at the Hotel Nottingham. Professor De Sumichrast responded to the toast of Harvard, Dean Burton represente Technology, while Mr. Munroe, of Harvard, responded for the Canadians.

New York State Club.—March 7 the men from the Empire State met for the second time at dinner with over twenty men present.

Ohio State Club.—The club held its regular monthly dinner January 9 at the Union. Officers for the year were elected, as follows:

president, S. R. Miller, '07; vice-president, M. E. Allen, '08; secretary, N. Ransohoff, '10; treasurer, W. D. Spengler, '08.

The club held its second dinner of the year March 21 at the Union, about twenty members being present. President S. R. Miller, '07, presided.

Pennsylvania Club.—At an enthusiastic dinner of the club, March 25, the following officers were elected: president, D. B. Myers; vice-president, B. R. Fuller; secretary, S. N. McCain; treasurer, C. M. Steese. An executive committee was also elected, composed of R. W. G. Wint, G. M. Roads, and W. S. Woods.

Texas Club.—The first meeting of the club for this year was held on January 7. H. G. Pastoriza was elected president, and F. M. Heidelberg secretary-treasurer.

The club met at the Union March 2 to celebrate the first Texas holiday, the day on which Texas declared herself independent of Mexico.

Newton High School Club.—The club at a meeting March 29 elected officers and discussed the annual dinner. The new officers are: president, G. S. Gould, '07; vice-president, K. G. Chipman, '08; secretary-treasurer, H. E. Whitaker.

Y. M. C. A.

Rev. John Hopkins Denison, of the Central Congregational Church, gave a series of lectures before the Technology Christian Association, as follows: February 7, "A Month among the Cannibals of German New Guinea." This lecture was illustrated with lantern slides made from snapshots taken by himself. February 14, "Social and Moral Conditions on the East Side of New York City." February 21, "The Influence of Christ To-day."

Frank K. Sanders, D.D., former dean of the Yale Divinity School, addressed the Association, February 28, on the "Origin of the Inter-collegiate Y. M. C. A. Movement."

At the weekly meeting of the Association, March 14, Professor Winslow, of the Biological Department, spoke on "Motives." After the address the following results of the elections were an-

nounced: president, J. G. Reid, '08; vice-president, L. B. Hedge, '08; treasurer, J. N. Stephenson, '09; secretary, E. R. Jackson, '10.

Professor W. T. Sedgwick addressed the Association at the meeting of March 21, in Trinity Church, taking as his theme "The Essence of Christianity" as applied to the world of to-day.

Rev. James Alexander, of the First Presbyterian Church of Boston, delivered the first of a series of three talks to the Association March 28. His text was, "What think ye of Christ?" The following week he took as the subject of his talk, "Believe in God as an Asset," and the week after he spoke on "How We may Find Ourselves."

KOMMERS

The first *Kommers* of the second term, held February 16, under the auspices of the Civic Club, was well attended. Mr. Louis Frothingham gave an interesting and instructive talk on the Panama Canal.

There were about one hundred men present at the 1909 *Kommers*, March 9. After the usual singing the first speaker, Dean Burton, said that he was glad to see the *Kommers* prospering under the new management, and that he liked the idea of each class taking charge and inviting the others to come.

Mr. Eugene N. Foss spoke at the *Kommers*, March 16, on "The European Commercial Situation and its Relation and Importance to the United States." Last year Mr. Foss travelled through Europe for the purpose of studying these conditions.

The Freshman Hook Night, March 23, filled the Union with the largest crowd this year. Bursar Rand made the only speech of the evening.

Moorfield Storey, Esq., spoke at the *Kommers* March 30, his subject being "The Duties of Young Men as Citizens."

TECH SHOW

The play this year is a musical comedy, entitled "William, Willie, and Bill," and is of a much lighter nature than "The Freshman."

The scene is laid in a summer hotel, and the atmosphere is entirely collegiate. A number of new specialties will be introduced. In all there will be a cast of sixty, of which ten are principals.

The Colonial Theatre has been engaged for two matinée performances on the afternoons of April 25 and 26, the Malden Auditorium for the evening of April 26, and the Providence Opera House for the evening of April 27.

The author of the book, E. W. James, '07, will be unable to see his play produced, for he has accepted a civil service position in the Philippines.

The Tech Show poster this year is not to be the work of a professional, but of an undergraduate. S. R. T. Very, '07, was awarded the ten-dollar prize as best expressing the subject of the Show and as best from the point of view of the advertiser.

THE CLASSES

1907.—Voting for Senior Class Day marshals closed February 14, with the following results: first marshal, J. H. Leavell; second marshal, D. G. Robbins; third marshal, J. M. Frank.

BRIEF SUBMITTED TO THE FACULTY

Is the class of 1907 to wear Caps and Gowns at Graduation? Is the Massachusetts Institute of Technology to follow the recognized custom among all the leading educational institutions of the country to-day or is she to refuse? Is the man who refuses to wear evening dress to-day to be respected for his independence or is his narrowness to be deplored? Has not the Cap and Gown come to be equally the proper apparel for college graduation, as the dress suit for the evening function or the frock coat for the afternoon? Has not the Cap and Gown become entirely a recognition of scholarship *rather* than a relic of monasticism and a symbol of the old classical education? Are we not considering this matter from the standpoint of merit rather than from that of "copying" other institutions of learning?

It has been urged that the adoption of Cap and Gown would be contrary to traditions of the Institute. We ask what tradition we have in the Insti-

tute of which we violate the spirit. It is this lack of tradition that we are trying to remedy. Have not conditions entirely changed since the early days of the Institute, and has not Technology come to be looked upon as a *college* among *the colleges* rather than as a trade school? We would call to attention as a significant fact the marked changes, especially regarding Graduation exercises, which have taken place since the founding of the Institute. There has been a growing desire in the successive graduating classes for Caps and Gowns for the last ten years, which for the last four years has assumed serious proportions; and, in view of this fact, is it not reasonable to assume that this feeling will continue to grow?

It is impossible to deny that the progress of the Institute has been materially aided by the introduction of various college activities and ideas which have already served to exert a very broadening influence on undergraduate life. Why is it not wise to continue this policy? *Do we wish to admit that the education which Technology gives is not so broad and so liberal as that which may be obtained in other colleges?* Is it not wise for the Institute to recognize the value of public opinion as is shown in the following extract from an editorial which appeared in the Boston *Herald* of December 31, which is certainly worth our consideration?

CAPS AND GOWNS AT TECH

Will Tech Seniors wear Caps and Gowns? We do not know why they should not put on this last outward sign of academic recognition which they have won for their kind of training.

The education for which Dr. Eliot pleaded in the *Atlantic Monthly* in 1868 (and became Harvard's president in consequence) was the education which isn't necessarily presided over by a clergyman, and which recognizes more than one kind of knowledge. That plea has pretty nearly come to pass. Caps and Gowns by all means. Let the world know that it is as dignified to build a bridge as to dig up a Greek city.

We believe that three strong arguments in favor of the Cap and Gown are:—

First, Uniformity of Dress. *Second*, Democracy. *Third*, Economy.

First. Uniformity of dress not only adds a dignity to the occasion not attainable in any other way, but it gives a distinctive mark to the graduates.

Second. Since we feel that democracy is a cardinal doctrine at the Institute, we strive to attain it by providing a costume which is the plainest, simplest, and most democratic possible.

Third. There can be no question but what Caps and Gowns, which can

be obtained outright for from five to ten dollars or rented for two dollars, are much cheaper than any other outfit suitable for the occasion.

Feeling that the completion of Technology's course does deserve an exercise, we wish to make this exercise fitting to the occasion. We believe that this end can best be accomplished by the adoption of Caps and Gowns. We call attention to the fact that out of the twenty leading institutions, either wholly scientific or having scientific departments, to which letters have been sent, fifteen use the Cap and Gown. We invite your inspection of these letters, which will be turned over to the Faculty Committee. We have endeavored to obtain the opinion of the alumni, and, as far as we have succeeded, we find the sentiment is in favor. See also the expression of the class's desire for the adoption of Caps and Gowns, which, notwithstanding an unfortunately ambiguous wording of the question, showed a two to one vote in favor, in one of the largest polls of votes in the history of the class.

We, therefore, in the light of the foregoing statement, invite your careful consideration of this matter. CLASS OF 1907.

As the thesis work of some of the Seniors, there started March 22 two seventy-two hour plant tests. Both are on electric power plants, one at Haverhill and the other at Waltham. Besides the Seniors who are running the tests, there are many Juniors and under-classmen who will also take part as assistants.

The Haverhill test was conducted by Whitney, Dean, Tylee, Frank, Pease, and Keeling, all '07.

The test on the Waltham plant was conducted by Macomber and McChesney, of the Electrical Department, and Packard and Nichols, of the Mechanical Department.

TECH SONG BOOK

At a meeting of the Senior Class last November a question was brought up as to the advisability and possibility of publishing a new edition of the book of Tech Songs. As a result of the discussion, a committee was appointed to look the matter up. This committee found that the first edition, published in 1903, contained many songs which were hardly sung at all, and that there were many songs which might well be included. Upon making a favorable report at a later class meeting, this committee was in-

structed to go ahead on the work of getting out a revised edition. Since then a contract has been made with the Oliver Ditson Company to publish a new edition, and it is expected that it will be issued by the time of the Commencement exercises and Alumni Reunion.

The contents of the book have undergone a complete revision at the hands of the committee. Twenty-four of the forty-nine songs in the first edition have been retained, and forty-six songs from various sources have been added, bringing the size of the new book above one hundred twenty pages, ten pages more than before.

Of the songs that have been added, twelve are distinctly Tech Songs. Five of these are used by permission of the management of the Tech Show. They are the most popular songs which have come out in the Tech Show during the past few years. Three more of these are songs written by Tech men, and the other four are adaptations of songs which are used, with suitable words, at many colleges.

The group of songs termed "Old Timers" by Mr. Bullard has been extensively added to. After looking over many college-song books, the committee selected twenty-one songs which seemed to be the most universally known, and the best liked wherever known. This number includes such songs as "Juanita," "Jingle Bells," "The Pope," etc.

A new departure has been made in the introduction of several patriotic songs and a number of representative songs of other colleges. This latter number includes a song representing each of nine colleges, such as "Fair Harvard," "Bright College Years," "Cornell Alma Mater," etc.

Such is the general outline of the contents of the revised edition of the Tech Song Book. The committee has undoubtedly made mistakes in the selection of songs, but it has tried to do its best. The Senior Class Day Committee has had enough confidence to order one hundred fifty copies to be given to the Tech Union as the class gift, and we trust that its reception among undergraduates and alumni may be equally warm.

DONALD G. ROBBINS, '07.

1908.—On March 2 the classes of 1898 and 1908 held a joint dinner at the Union. The ten years that separated the two classes were merged into a single delightful evening. The dinner was in the nature of an experiment, but it proved a signal success. Under the leadership of toastmasters, Winslow for '98 and Gerrish for '08, Technology spirit fused the two classes into an enthusiastic Tech-

nology unit. There were speeches from C.-E. A. Winslow, A. A. Packard, W. H. Godfrey, H. L. Coburn, V. W. Edgerly, and K. W. Waterson for 1898, and from H. T. Gerrish, G. T. Glover, and K. Vonnegut for 1908. Unqualifiedly, the dinner was a success, success enough to justify the belief that it was more than an experiment, more than a novelty, and that it will in time be recognized as the establishment of a custom. It is such customs as these that inspire alumni and undergraduates with their proverbial faith in the superiority of college years.

Technique, 1908, is about to go into print. We believe the book will do credit to the class, and also uphold the high standard set by previous editions. The competition for the cover design was won by Kurt Vonnegut, '08.

On Feb. 6, 1907, the Faculty voted that the spring recess this year be from Thursday noon, April 25, until the end of the week, but that next year it will be April 20, 21, and 22. Hereafter the spring recess in April will be the first half or the last half of the week in which the 19th occurs, according as the 19th shall fall in the former or the latter.

1909.—About a hundred men were present at the *Kommers* on Saturday evening, March 9. Dean Burton and Mr. Rand spoke, and the musical entertainment was provided by Kelly, R. H. Allen, and Jenkins, members of the class, besides two local vaudeville artists. Everybody had a fine time, and the evening was a great success.

The results of the elections for the 1909 *Technique* Electoral Committee were as follows: R. H. Allen, Belden, Bundy, Critchett, Dickerman, Emerson, Finnie, Flagg, Godfrey, Gram, Hutchinson, Jenkins, Keeney, Kellogg, W. J. Kelly, W. W. King, Koppitz, Kurtzmann, Miss Longyear, Lord, Miss Luscomb, Moses, Scharff, Taite, Whitaker.

The board as elected consists of: associate editors, M. R. Scharff, R. H. Allen, B. E. Hutchinson, R. M. Keeney; athletic editor, A. L. Moses; society editor, A. L. Dickerman; statisticians, W. W. King, C. J. Belden; business staff, C. G. Koppitz, J. H. Critchett, P. B. Lord, W. J. Kelly.

The editor-in-chief, business manager, treasurer, and secretary will be elected later by the board.

1910.—The class is making preparations for the baseball season, having elected John Avery, Jr., as manager. J. M. Townsend has been re-elected manager of next year's football team. On the 23d of March the class had an entertainment at the Union called "Hook Night." A number of the students took part, and souvenirs were given to each member of the class.

The annual Prize Drill of the M. I. T. Corps of Cadets will be held on the evening of May 17.

ATHLETICS

N. E. I. A. A.

In spite of the fact that it made the best offer that the association had ever received, the New England Intercollegiate Athletic Association, at the annual meeting held February 16, decided that the meet should this year be held on the Worcester Oval, where, with one or two exceptions, it has been always held, up to last year.

B. A. A. GAMES

In spite of a serious mishap in the first relay, Technology defeated Holy Cross in the relay race at the Mechanics' Building, February 16, by half a lap.

Of the Tech men entered in the other events, R. H. Allen, '09, won the high jump with an actual jump of 5 feet $7\frac{1}{2}$ inches. His handicap of $5\frac{1}{2}$ inches enabled him to defeat H. A. Gidney, scratch, by three-quarters of an inch.

Six Tech men, Gould, '07, Fernstrom, '10, Gram, '09, Richards, '07, Todd, '08, and Moses, '09, ran in the 40-yard handicap dash, the first four winning their trial heats.

Other Tech men who competed were R. C. Albro, '07, in the 45-yards high hurdle race; H. H. Howland, '08, and C. J. Batchelder,

'08, in the mile run; G. H. Chapman, '07, in the 1000-yards run, and M. E. MacGregor, '07, in the 2-mile run.

BASKET-BALL TEAM

With a record of two close games with West Point and the College of the City of New York and a victory over the crack Brooklyn Polytechnic five, the team returned February 4 from its very successful trip to New York. The following men were sent: Manager Whitmore, Captain Kinnear, Nichols, '09, Bitler, '08, Pierce, '08, and Campbell, '09. Coach Schonthal accompanied the team. On January 30 the team met the College of the City of New York in New York, and after a close game was defeated by the score of 20 to 14. The following evening Tech defeated the star Brooklyn Polytechnic Institute team in a rough game.

On Friday evening a game was to have been played with the New York University Law School, but unfortunately turned out to be rather a fluke. After a disappointing contest the Institute five was badly defeated by a semi-professional team (only two members of which were Law School men) on a floor totally unsuited for basket ball.

On Saturday they journeyed up the Hudson to West Point, and in the afternoon played the cadets. The Tech five played a good game, and by consistent covering were able to hold the West Pointers down to a score of 19 to 13.

Owing to lack of facilities for practice, a general disinterestedness on the part of the student body, and mishaps to members of the team, the basket-ball season of '06–'07 has not been very successful.

The percentage of games won was small, but in many of the games Tech's opponents won by only a few points. Tech scored 302 points to 392 for opponents. Out of the seventeen games played, only three were won.

FENCING

Yale won the triangular fencing meet March 23 by taking twelve bouts, while Columbia finished second with 10 bouts, and Tech came last with 5 bouts. Tech was completely outclassed by both teams, and the Institute men could win only from three of the opponents, Byrne and Amend, of Columbia, Smith, of Yale.

At a meeting of the Intercollegiate Fencing Association March 31, Technology was elected to membership. The only opposition to the election was made by the Harvard representatives, who made a hard fight to keep the Institute from the association.

The Fencing Team has been endeavoring for a number of years to be admitted to the Intercollegiate Fencing Association, and until this year has always been voted down. Last year West Point opposed the election on the grounds that Technology was not a university, and that the association should be open only to universities.

As a precedent, it was pointed out that Technology had a team in the Intercollegiate Cross Country Association, but the application was rejected. Harvard, Cornell, and Columbia resigned from the old body, and together with the Institute formed a new league. This league went to pieces in a short time, and the three colleges rejoined the older association.

CROSS COUNTRY ASSOCIATION

At the meeting of the association held March 13 the following officers were elected: president, H. R. Callaway, '08; secretary-treasurer, R. Ellis, '09; manager, R. W. Ferris, '08; captain, H. H. Howland, '08; chase captain, J. N. Stephenson, '09.

HOCKEY

During the vacation the team played, besides minor games, two important intercollegiate games with Massachusetts teams. The team went out to Williamstown and defeated Williams College, 2 to 1, in a fast match.

The next day the team played Springfield Training School at Springfield, and were unable to score against the Training School seven. The score was 5 to 0.

TRACK TEAM

Spring training for track athletics began March 19.

The spring meet, or class games, will be held April 13, and following there are two dual meets and an intercollegiate meet at which Tech will be represented. On May 4 Tech has a dual meet with the University of Maine at Orono, Me. The delegation to it will be twenty-five men. The Brown meet, to be held at Tech Field, comes May 11.

The wind-up of the season will be at the New England intercollegiate meet at Worcester on May 24 and 25, in which Tech will be represented by about sixteen men.

THE GRADUATES

ASSOCIATION OF CLASS SECRETARIES OF THE M. I. T.

A special meeting of the Association of Class Secretaries was held at the Technology Club, Boston, on Friday evening, April 5, 1907, to consider plans for the annual Commencement celebration. The members dined together, as usual. The business meeting was called to order by the secretary at eight o'clock, and Professor C. F. Allen, '72, was chosen chairman of the meeting.

Following the reading of the minutes of the previous meeting (in November, 1906), which were approved, the meeting proceeded to discuss plans for this year's Commencement, which occurs on Tuesday, June 4.

Taking up the matter of spreads, which are held on the afternoon of Commencement Day, H. L. Coburn, '87, suggested that in place of individual class spreads all classes unite in a general spread at the Technology Club.

Everett Morss, '85, president of the Alumni Association, and J. F. Norris, president of the Technology Club, favored Mr. Coburn's suggestion, and upon motion of E. G. Thomas, '87, it was voted that the sense of the meeting was that a general spread of all the classes be held at the Technology Club, and that the expense be met from the profits of the Pop Concert.

Upon motion of I. W. Litchfield, '85, it was voted that the chairman appoint a committee of fifteen, including the president of the Alumni Association as chairman, to take full charge of all arrangements for Commencement. The chairman appointed the following committee: Everett Morss, '85 (chairman); J. F. Norris; H. L. Coburn, '87; C. F. Park, '92; L. W. Pickert, '93; J. A. Rockwell, '96; R. H. Stearns, '01; M. L. Emerson, '04; R. H. W. Lord, '05; G. DeW. Marcy, '05; Lawrence Allen, '07; Alexander Macomber, '07; Kurt Vonnegut, '08; A. G. Kellogg, '09; A. F. Glasier, '10.

L. W. Pickert, '93, for three years the chairman of the "Tech Night Pop Concert" Committee, spoke of matters in relation to the Pop Concert, and suggested that, in sending out information about the various Commencement activities, all notices from the classes, the Alumni Association, and the Commencement Celebration Committee, be mailed together from the alumni headquarters. Mr. Morss favored the idea, and suggested that the expense be divided between the Alumni Association and the class secretaries. After further discussion it was voted, upon motion of A. G. Robbins, '86, that the Commencement Celebration Committee join with the Alumni Association in sending out notices for Commencement, and that the expense of postage and mailing be divided between the Alumni Association and the Association of Class Secretaries.

E. H. Packard, '07, spoke of the progress of the work upon the new Tech Song Book, which is being revised and brought out by the Senior Class as its graduating gift to the Institute.

A report of the annual meeting of the North-western Association at Chicago on March 2d was given by Mr. Litchfield, who attended the meeting in company with Frederick P. Fish, Esq., of the Institute Corporation. Mr. Litchfield and Mr. Morss spoke of the need of sending representatives from the Institute to meetings of alumni in other cities, and Mr. Morss told of the work already done by the Alumni Association in this matter. Mr. Thomas thought it desirable that notices of meetings of each local alumni organization be sent to all such organizations, and asked that the Committee on Closer Relations consider the suggestion.

The secretary read a letter from the secretary of the class of '82 requesting a reservation of seats at the Tech Night Pop Concert for the ladies who were to attend the celebration of the twenty-fifth anniversary of that class. Several members who spoke on the subject believed it would add to the pleasure and popularity of the Pop Concert for classes who cared to do so (particularly classes observing some special anniversary) to make balcony reservations for their ladies. Upon motion of Mr. Coburn the letter from the class of '82 was referred to the Commencement Celebration Committee.

Mr. R. H. W. Lord, '05, brought up the subject of uniform

membership cards, which at present are issued by local alumni organizations to their members, and are used as cards of introduction to other organizations. Mr. Litchfield spoke of the need of sending out to Tech men generally, either through the class organizations or the Alumni Association, information concerning the various local Tech organizations, so that any Institute man, upon visiting a city where such organization exists, would know how to reach Tech men in that locality. The meeting adjourned at ten o'clock. Attendance, thirty-three.

FREDERIC H. FAY, '93, *Secretary*.

NORTH-WESTERN ASSOCIATION OF THE M. I. T.

The annual meeting of the North-western Association was held at the University Club, Chicago, on Saturday, March 2, at 6.30 P.M. The attendance was the largest that we have had for some years, and included men from Detroit, Cincinnati, and many other points at some distance from Chicago. The report of the secretary and treasurer showed the Association to be in a prosperous condition, and the average attendance at the meetings being larger shows greater interest on the part of the members. Officers for the ensuing year were elected, the result being as follows: J. T. Cheney, '03, president; E. M. Hagar, '93, first vice-president; A. W. Woodman, '90, secretary and treasurer. Executive Committee: R. E. Schmidt, '87; F. D. Chase, '00; Bernard Blum, '04. As there was no other business to come before the meeting, we adjourned to the dining-room. The dinner was truly typical of the Association, and the presence of Mr. Frederick P. Fish, "Ike" Litchfield, and Dugald C. Jackson, the new professor in the Electrical Engineering Department, added much to the occasion. Seventy-six members listened to the very interesting remarks of Mr. Fish, who gave the best insight into Institute affairs that has been given the Association for some time. His remarks covered the present, past, and future of the Institute, including in the latter a brief outline of the work that had been done by the committee in whose hands the choice of the new President lies.

Litchfield came to Chicago especially for this affair, and he was given a royal reception. His remarks were mostly reminiscences, and were heartily received.

The telephone investigation that was being conducted here enabled us to have Professor Jackson with us, and we were especially glad of the opportunity to show him the true Technology spirit.

Robinson, '84, emphasized in a most able way the duties that rested upon the shoulders of every Tech man, now that the merger question has been settled. Several telegrams were received from absent members, and there was music by an orchestra. Numerous songs and cheers during the evening made it most enjoyable.

JOHN T. CHENEY, '03, *Secretary*,
120 Wabash Avenue, Chicago, Ill.

THE TECHNOLOGY CLUB OF PHILADELPHIA

It has been felt for some time, among some of the members, that the club should have permanent quarters. At the last meeting a committee was appointed to solicit contributions and arrange for securing a suitable site, if the necessary financial assistance was forthcoming.

Dean Burton brings to the REVIEW the following report of the annual dinner held at the Hotel Flanders on April 4: "There were about thirty-five present at the dinner, and, in addition to the speakers who are down upon the program of the meeting, Professor Lanza spoke a few words. He was introduced as Sir Gaetano Lanza, and told about the excursion which he was taking with the Senior Mechanical Engineers to visit the Baldwin Locomotive Works at the invitation of Mr. Vauclain. The subjects taken up by the different speakers were: Major Cassius E. Gillette, chief engineer of the Bureau of Filtration, Philadelphia, 'The Panama Canal'; James K. Young, Ph.D., Dean of the Wharton School, University of Pennsylvania, 'The Business Man, the Financial Crisis, and the University'; Samuel M. Vauclain, superintendent of the Baldwin Locomotive Works, 'The Age Limit'; and Professor Alfred E.

Burton, dean of the Massachusetts Institute of Technology, 'Changes in the Student Life at the Institute during the Last Five Years.' Major Gillette's talk on the Panama Canal was especially interesting."

ROBERT H. BOOTH, '06, *Secretary*,
Linwood, Pa.

WASHINGTON SOCIETY OF THE M. I. T.

This society has adopted for the present year the plan of monthly meetings with informal dinners and smokers on the second Monday of each month, omitting the meeting formerly held on the fourth Monday of the month.

The year was begun auspiciously with a well-attended meeting on January 14. In the evening Mr. M. L. Fuller, '96, of the Geological Survey, gave a well-prepared talk on "Earthquakes," illustrated by lantern slides. The subject was treated scientifically with illustrations from the so-called New Madrid earthquake, a violent upheaval that had its centre in the Mississippi valley in the early part of the last century, and the more recent Charleston and San Francisco earthquakes. Of the three the first mentioned was stated to have been much the most severe and wide-spread, so that its effects can still be traced after nearly a hundred years, though it did not cause such great destruction of life and property as did the later ones, the country being then thinly settled.

There is believed to have been an important relation between the presentation of this subject before the society and the earthquake in Kingston, Jamaica, which occurred the same afternoon, and news of which came next day, though its exact nature has not yet been established.

At the meeting of February 11 Mr. William J. Rich, '84, a principal examiner in the United States Patent Office and ex-president of the society, gave a talk on "Patents and the Patent Office," in which an explanation was given of all the steps of procedure in obtaining a patent. The topics covered were, in brief, the preliminary search, the services of the attorney, the specification and drawing, the claims, the mode of examination in the office, amendments, ap-

peals to the Board of Examiners-in-Chief in cases of final rejection, appeals to the commissioner and the courts, and reissues. Some amusing examples of the "freak patents" that are occasionally taken out were also shown.

At the meeting of March 11 a programme of music on the Cecilian was enjoyed, played by Mr. F. F. Longley, '04. Among those present was Joseph B. Baker, '90, who has lately come from the fuel testing laboratory of the Geological Survey in St. Louis to the Washington offices of the Survey.

Other accessions to the society within a few months are: LeRoy E. Kern, '02, G. Curtis Noble, and Donald C. Bollard, all of the Supervising Architect's Office; and Dana N. Wood, '06, of the Geological Survey.

The following men have removed from Washington to other parts of the country: Frederick G. Clapp, '01, has gone to the Boston office of the Geological Survey; Frank O. Stetson, '88, has taken a position with Stone & Webster, Boston; Edwin F. Samuels, '99, and William I. Wyman, '00, have resigned from the Patent Office, the former taking a position with Stuart & Stuart, patent attorneys, Baltimore, and the latter having gone to New York.

On March 9 a change occurred in the government service that is of great interest to Technology men here by reason of the additional prominence it brings to one of their number whose work had already become well known. On that date the United States Reclamation Service, formerly a part of the Geological Survey, was made an independent bureau of the Interior Department, and Mr. Frederick H. Newell, '85, the chief engineer under the Survey, was appointed as director at the head of the new bureau. Highly complimentary notices of the new director were published in Washington papers at the time. At present the Reclamation Service has under way construction work involving the ultimate expenditure of $40,000,000. Employment is being given to 10,000 persons, and the monthly expenditure is approximately $1,000,000.

F. W. SWANTON, '90, *Secretary*,
1641 13th Street, N.W., Washington, D.C.

THE TECHNOLOGY CLUB OF THE MERRIMACK VALLEY

The annual meeting of the club was held in Lowell, Mass., on Friday evening, February 1, at the New American House. Dinner was served at one dollar per plate.

Preceding the dinner there was an election of officers, resulting as follows: president, R. A. Hale, Lawrence; vice-president, George A. Nelson, Lowell; member executive committee, John Alden, Lawrence.

The guest of the evening was Professor T. A. Jaggar, Jr., of the Institute, who spoke on "The Relation of the Engineer to Volcanoes and Earthquakes," illustrating his talk with many stereopticon views of Vesuvius, Mt. Pelée, La Soufrière, and the San Francisco earthquake. Professor Jaggar gave a detailed description of that delicate instrument, the seismograph, whereby the motions of the earth's crust are recorded.

Those present at the dinner were: Collins, '97, Bowers, '75, Hale, '77, Carney, '93, Stevens, '10, Coburn, '97, Lambert, '98, Morrill, '09, Bowen, '09, Morton, '04, Morrill, '07, Boyd, '97, Barker, '96, Brown, '77, Nelson, '77, Alden, '77, Atwood, '76, Faulkner, '76, Simpson, '90, Eastman, '88, Kimball, '86, Ball, '06, Perkins, '99, Perkins, '01, Booth, '02, Chalifoux, '02, Eames, '97, Hamblet, '88, Hildreth, '87, Hildreth, '85, Chase, '74, Towne, '78.

JOHN A. COLLINS, Jr., '97, *Secretary*,
74 Saunders Street, Lawrence, Mass.

CINCINNATI M. I. T. CLUB

The annual meeting and dinner of the Cincinnati M. I. T. Club was held at the Hotel Sinton on Friday evening, March 22, 1907. Vice-President John A. Hildabolt presided. It proved to be a most enjoyable occasion for the twenty-four Tech men who were present. The guests of the evening were Professor Herman Schneider and Professor J. T. Faig, who are at the heads of the Courses in Civil and Mechanical Engineering, respectively, at the

University of Cincinnati. Dr. Thomas Evans introduced Professor Schneider, who described in a most interesting manner the workings of the Co-operative Course in Engineering established through his efforts at the University of Cincinnati. Students in mechanical, electrical, and chemical engineering spend one week at the University in study and the following week at work in some one of the various industrial plants within or near the city. The course is six years in length, and the money earned in the shops during half of the six years spent in this way, enables young men to obtain an excellent education and at the same time be self-supporting. The cordial co-operation of the manufacturers, who are much pleased with the results thus far obtained, together with the enthusiastic aid of the faculty and of the city authorities, has made a distinct success of this unique experiment in education. Professor Faig spoke of the peculiar advantages offered by Cincinnati for making such an experiment, especially in connection with industrial engineering. Mr. James B. Stanwood spoke from the standpoint of the manufacturer, and pointed out the great advantages to any industry which employed students being trained in this manner, and of the high character and quickened intelligence of those young men who had come under his observation.

A nominating committee appointed by Vice-President Hildabolt named the following members of the club as officers for the ensuing year: for president, John A. Hildabolt, class of '75; vice-president, Rudolph Tietig, class of '98; treasurer, William E. Brotherton, class of '73; secretary, J. W. Ellms, class of '93; for a member of the executive committee for one year, Fred. G. Garber, '03; for two years, Morten Carlisle, '90; and for three years, A. Senior Prince, '05. The above-named members were duly elected.

The minutes of the last meeting were read by the secretary, and were accepted. A vote of thanks was given Professors Schneider and Faig for their interesting remarks.

J. W. Ellms, '93, *Secretary*,
E. Court and Martin Streets, Cincinnati, Ohio.

TECHNOLOGY CLUB OF HARTFORD

The Technology Club of Hartford held its annual meeting and dinner at the Hartford Club Saturday evening, February 9, the business meeting being held at six and the dinner at seven o'clock. The officers elected are: president, Henry Souther; vice-president, A. M. Holcombe; secretary and treasurer, George W. Baker.

Those present at the meeting were Howard A. Burdick, Charles Pettee, G. H. Gleason, A. M. Holcombe, Horace H. Ensworth, Henry Souther, George W. Baker, E. H. Lorenz, Clarence E. Whitney, F. C. Moore, Charles R. Nason, Henry A. Fiske, F. M. Blake, H. P. Maxim, and D. A. Richardson, all of Hartford, and C. P. Waterman, of Bristol.

Speeches followed the dinner, A. M. Holcombe being the toastmaster, and the addresses were by Frederick C. Moore, Henry Souther, H. A. Fiske, and H. P. Maxim. Mr. Souther called attention to the field open to Technology men in this city, and urged them to take a more active part in solving the scientific problems which confront the city.

Frederick C. Moore, superintendent of the Special Risk Department of the Hartford Fire Insurance Company, spoke briefly on the subject of "Fire Protection and Mill Construction," referring to the cardinal principles, and pointing out that the high reputation of mill construction was largely due to the fact that this type has generally been provided with the protection of automatic sprinklers.

Mr. Fiske took for his subject a quotation from the *Standard* of Boston, being the opinion expressed by Captain Sewall, of the corps of engineers of the United States army, who was detailed by the War Department to certify the reports made of the condition in cities by the engineers of the national board.

"Nothing is of more importance at the present moment than the protection of the congested value districts of modern cities from conflagration."

Mr. Fiske enlarged on the present deplorable conditions existing in many cities, pointing out the need of reform, it being a matter which affects us all to a greater or less extent. Technology men

are especially well fitted to grasp a subject of this kind, and, by concerted effort in the communities in which they reside, to be of great usefulness.

The club, which was formed in 1894, meets once a month in the Rathskeller of the Hotel Heublein, when papers of interest to the members are read and discussed.

GEORGE W. BAKER, '92, *Secretary*,
P.O. Box 983, Hartford, Conn.

A TECHNOLOGY GATHERING AT PANAMA

A very jolly and enthusiastic reunion of Technology graduates was held at the Tivoli Hotel, Panama, on the evening of February 12. The occasion was the visit of President Pritchett to the Canal Zone, and all the Tech men engaged in the various engineering departments of this great enterprise arranged to meet President Pritchett and renew the memories of Technology. About ten Tech graduates are employed on the Canal, nearly all of whom were present, and the meeting was one of great enthusiasm. It was a cheering sound to hear the familiar M. I. T. cheer in these tropical surroundings. Among the graduates present were: Frank A. Browne, Robert J. Lyons, Andrew L. Bell, all of the class of 1906; John H. Flynn, Jr., William P. Bixby, Clarence E. Gage, all of the class of 1905; Alexander S. Ackerman, of the class of 1903, and several others.

President Pritchett spent three days in examining the work in progress, and received from Chief Engineer Stevens every facility for obtaining a good view of what was going on. He expressed himself enthusiastically concerning the work which Mr. Stevens and his assistants are doing.

THE TECHNOLOGY CLUB

Since the annual meeting in October the following smoke talks and ladies' nights have been held at the club:—

On the second evening, October 18, Mr. T. H. Skinner (IV.), '92, addressed the club on the subject of "The Earthquake in San Francisco." He gave particular attention to the effects of the earth-

quake and the subsequent fire on steel structures, and the talk was well illustrated by many stereopticon slides. On November 19, a business meeting of the club was held, at which the method of electing members was changed to the effect that the names of all candidates for membership, after the usual approval by the Membership Committee and being posted on the bulletin board, shall be included in the notice to all members of the club, and the vote of the council on these names shall be by letter ballot monthly. On the occasion of this meeting Professor George E. Hale (VIII.), 90, gave an illustrated talk on "A New Mountain Observatory." On the evening of December 7, Professor Henry E. Crampton, of Columbia University, related the experiences of "A Naturalist in Tahiti." On the fifth evening of the season, December 21, a most interesting talk was given on "Alaska and its Resources," by ex-Governor John G. Brady, of Alaska. The speaker has spent many years of his life in that country, and he traced its history and development from Russian times to the present. His accounts of many incidents, together with a collection of curios and a large set of stereopticon slides, made real to the appreciative audience the story of Alaska. On the sixth evening and a ladies' night Señorita Carolina Holman Huidobro, with the aid of a beautiful collection of stereopticon slides, took the members on a trip to see "The Wonders and Marvels of Peru." Many of the members remembered the brilliant talk which Señorita Huidobro gave in 1903, and on the present occasion the "common room" was taxed to the limit. The second ladies' night was held February 19, when Mr. William Lyman Underwood gave an illustrated talk on "By-paths in Florida and Nassau." Again the "common room" was filled to its full capacity, and the members were well entertained. On the eighth evening, March 18, the members were made acquainted with Africa, when William L. Smith, M.D., gave a smoke talk on "Big Game Shooting in Somaliland."

The attendance at these talks has been increasingly large. Frequently interesting discussions have been held, and after each talk light refreshments have been served. Early in March the following special announcement was made:—

"The House Committee announces a new departure in the serving of lunches, whereby members may be served with either the regular three-course lunch at forty cents, as heretofore, or the different portions of it on the *à la carte* plan. One or two dishes have also been added for the latter service, thus enabling members to secure different combinations, possibly more satisfactory to them and at less cost than the regular lunch.

"It is hoped that this change will have the effect to popularize the club as the best noon meeting-place in the city for Technology men, and to this end all members, especially those who have not heretofore lunched at the club, are cordially invited to come in and make the innovation a success."

ANGELO T. HEYWOOD, '06, *Secretary*,
83 Newbury Street, Boston, Mass.

NEWS FROM THE CLASSES

1868.

ROBERT H. RICHARDS, *Sec.*, Mass. Inst. of Technology, Boston

Robert H. Richards has been collecting a great quantity of material for use in the preparation of his additional volume to his book on "Ore Dressing." He is now getting this into shape, so that it can be moved, and is planning to spend six weeks at camp in the White Mountains in June and July, writing on the book. He expects to work three shifts a day some days, and take an occasional walk over the mountains for exercise and recreation.

1870.

PROF. CHARLES R. CROSS, *Sec.*, Mass. Inst. of Technology, Boston.

The death of Mr. S. Matthews Cary, which occurred on April 1, 1905, after a long illness, but which has only recently come to the knowledge of the writer, will cause the most sincere regret, not only to his classmates, but to all who have been brought into contact with him. Mr. Cary came to the newly established Institute of Technology after having begun his studies in civil engineering in the Rensselaer Polytechnic Institute. He speedily took a high place in the esteem and affection of his fellow-students, and was the first and only president of the somewhat loose class organization of '70. Although he did not plan his course for a degree, he remained at the Institute until his class graduated. Soon after this time he entered into business at St. Paul as a member of the firm of Robinson & Cary, and continued such until his death, securing and steadily maintaining a personal and business reputation of the highest character. He leaves a widow, two daughters, and a son.

1875.

E. A. W. HAMMATT, *Sec.*, 10 Neponset Block, Hyde Park, Mass.

The twenty-fifth annual meeting and dinner of the class of '75 was held at Young's Hotel on March 8, 1907, at 7.30 P.M., with these members present: Aspinwall, Beal, Bowers, Dorr, Hammatt, Hibbard, Lincoln, and Willard. The business meeting was called to order by President Hibbard at 9.30 o'clock, when the records of the last meeting were read and approved. The secretary and treasurer read his reports, which were accepted. On motion of Mr. Lincoln a vote of thanks was given the executive committee for their services. On motion, Mr. Lincoln was directed to cast a ballot, as that of the class, for the election of officers, which he did, and the result was declared as follows: president, Thomas Hibbard; vice-president, B. L. Beal; secretary and treasurer, E. A. W. Hammatt; executive committee, B. L. Beal, S. J. Mixter, W. P. Willard. On the question of amending the constitution so as to permit a change in the date of holding the annual meeting, the secretary reported, as the result of a canvass of the replies to his circular requesting light on this subject, as follows: ten did not express any opinion; seven had no choice as to date; one preferred the date between December 10 and January 15; two preferred the date between December and March; one preferred the date between February 6 and March 10; one preferred the date between March 1 and March 15; one preferred the date between April and June; one preferred the date to be in June; one preferred the date to be in June or in October. As under the present constitution the date comes between January 1 and April 1, it did not seem advisable to change it. Adjourned at 11 P.M.

1877.

RICHARD A. HALE, *Sec.*, Lawrence, Mass.

The annual dinner and thirtieth reunion of the class of '77 was held February 27 at the Technology Club, with fifteen members present. Vice-President C. F. Lawton presided, and the

officers elected for the ensuing year were: H. H. Carter, president. C. F. Lawton, vice-president; R. A. Hale, secretary and treasurer. Letters were read from members unable to attend, telegrams from Swain and Kittredge in New York during the meeting, and a telephone message from Wood at Washington. The meeting was informal, and general experiences of various members were given. It is planned to issue a directory and photographs of the members as at graduation and also at the present time.—Howard Evans has been heard from at Idaho Springs, where he has been engaged in mining for a number of years.—Swain has testified as expert in the New York Central Railroad case, where the electric train was wrecked and many lives lost.

1879.

EDWIN C. MILLER, *Sec.*, Wakefield, Mass.

Horace J. Howe is resident engineer of the new Broadway Bridge over the Harlem River. The process of removing the old bridge span and substituting the new one was a rare test of engineering skill, and was carried out successfully.

1882.

WALTER B. SNOW, *Sec.*, 29 Russell Ave., Watertown, Mass.

Greenville Temple Snelling has moved his architectural office to 37 East 20th Street, New York, N.Y.—George W. Mansfield, who has been located at Westerly, R.I., for some years past, is now at 1123 Schofield Building, Cleveland, Ohio.—Harry G. Manning as mechanical engineer of the Crucible Steel Company of Pittsburg, Pa., has been busy on plans for a million dollar plant.—The twenty-fifth anniversary dinner was celebrated at the Boston City Club on Thursday evening, February 7. Plans were discussed for the class reunion in June, and class colors were chosen. Gooding, Gerry, Herrick, Hall, Low, Warren, Lewis, Munroe, H. F. Ross, Darrow, French, and W. B. Snow were present.—Henry F. Ross

has transferred his office to that of the Mercantile Wharf Company, 88 Clinton Street, Boston.—John H. Ross, who is now abroad, has moved his office to 575 Atlantic Avenue.—Miss Clara P. Ames sails on April 20 for Naples, in charge of a small party, which will follow a carefully planned itinerary covering four months, in which they will visit Italy, Switzerland, France, and England.—Rufus F. Herrick has written an extremely interesting and complete work on "Denatured or Industrial Alcohol," which is published by John Wiley & Sons, New York. The timeliness of this book, the number and variety of the illustrations, and the fact that it includes the history, use, manufacture, and composition of denatured alcohol all over the world should prove of great interest, especially at the present time.

1883.

HARVEY S. CHASE, *Sec.*, 27 State Street, Boston.

The secretary of '83, having exhausted the arts of special pleading for items of class interest, and likewise his patience, proposes hereafter to publish stories received by wireless. The hidden and inner mysteries of each man's double life will be unfolded, to the agonized astonishment of a wondering world. These statements apply to members who fail to promptly cough up items of their own. *Vide:* By wireless: "Gale has four children, stout and hearty. Has named them appropriately 'Hurricane,' 'Cyclone,' 'Typhoon,' and 'High Wind'!"

1884.

PROF. WILLIAM L. PUFFER, *Sec.*, 307 Equitable Building, Boston.

The annual dinner was held at the Technology Club on the regulation night before Washington's Birthday at 6.30, and a very enjoyable evening was spent together. After a thorough discussion of the immediate business the thought of the coming twenty-fifth anniversary of the graduation exercises in Rogers set all hands to

talking of the past and the future. It was decided to appoint the three class secretaries, who couldn't find a suitable excuse for escaping, as a committee to prepare a special directory in honor of the time. Therefore Gill, Tyler, and Puffer will be after information from the boys, and asking all sorts of questions, and it was the sense of the meeting that none of the fellows should refuse to devote a little time to the preparation of the book. Appleton, Bardwell, Bennett, Coburn, Dearborn, Doane, Gill, Puffer, Rotch, and Tyler were present.—The secretary is sorry to have to present to the class the sad news of the sudden death of W. L. O'Brien. A card and newspaper clipping were received on the 23d of February, but there was no mention of the exact day of his death. He had been in perfect health, "and the announcement of his death came as a blow to many friends who were accustomed to think of him as enjoying the good things of life with his wife and daughter." Several years ago he retired from active work in the newspaper field, and devoted his time to travel and the carrying on of the estate left to him by the death of his father.—Another sad letter came on the fourth from classmate Rich, telling of the loss of his ten-year-old son Percy after an apparently successful operation for appendicitis. He was taken to the Garfield Hospital late Monday night, the 25th, and died early on Wednesday.

1885.

I. W. LITCHFIELD, *Sec.*, 10 Kenmore Street, Boston.

The following clipping is from the Boston *Transcript* of March 12:—

Frederick H. Newell, chief engineer of the reclamation service, has been appointed director of the service to succeed Charles D. Walcott, who resigned to become secretary of the Smithsonian Institution. The announcement was made late Saturday by James R. Garfield, the new Secretary of the Interior. The appointment of Mr. Newell as director marks the creation of the reclamation service as a separate bureau in the Interior Department. Under the guidance of Mr. Newell as chief engineer the

reclamation service has grown to be an enormous branch of the government service. In less than five years the service has practically completed four irrigation projects, and will supply water this year to 282,000 acres of desert land. At the present time construction work is going forward on twenty-five projects in twelve States and Territories, involving an ultimate expenditure of $40,000,000 and the reclamation of 1,200,000 acres. It has dug 1,267 miles of canal, several of which carry whole rivers. Its tunnels are more than nine miles long, and the excavations of earth and rock amount to 35,000,000 cubic yards, or about one-fourth of the estimated yardage of the Panama Canal. It has built ninety-four large structures, including two great dams, one in Nevada and one in Idaho. The work of the service is giving employment to 10,000 persons, and involves the expenditure approximately of $1,000,000 a month.

1887.

EDWARD G. THOMAS, *Sec.*, 80 Wall Street, New York, N.Y.

The secretary has accepted the position of manager of the Aero Pulverizer Company of No. 80 Wall Street, New York. This company manufactures a machine for pulverizing and feeding coal to furnaces requiring a high heat. It is largely used in the cement industry, for metallurgical furnaces, and has been applied to steam boiler work.—E. A. Haskell has just returned from a vacation trip in Florida.—J. Eugene Freeman, who was burned out in the San Francisco fire, has located his office in the Cohl Building of that city.—F. H. Schwarz, who is still mechanical engineer at the Pacific Mills at Lawrence, has just finished placing machinery and power to a spindle 30,000 mill, and is beginning new plans for more buildings.—Among the work which Brett has recently carried out have been a park at South Manchester, Conn., and the arrangement of estates of Samuel Cabot, Canton, James J. Storrow, Lincoln, Robert Cluett at Williamstown, and Palmer Slade at New London. He now makes his home at North Duxbury, Mass.—Carpenter is away in search of better health, having suffered recently from nervousness and overwork. He intends spending some three or four weeks in Florida.—This season Emery is managing the comedian

James Kennedy.—F. A. Thomas reports that the Pawtucket Foundry Company, of which he is treasurer, has sold its entire product for 1907 and 1908, amounting to over $600,000. A larger part of this product goes abroad.—Conant has returned to business, much improved by his recent vacation in Europe. Concerning it he has written me as follows:—

Left here early in January a year ago with my oldest son for Jamaica, arriving there on the 16th, just one year previous to the day we had the news of the earthquake. Spent some weeks in various parts of the island, and went from there to Bermuda, where my wife and another of my boys joined us. Spent six delightful weeks in Bermuda, returning to New York the latter part of March, and sailed a few days later for Naples with Mrs. Conant and my oldest son, Harold. Upon arrival at Gibraltar on Good Friday we had news of the eruption of Vesuvius, which occurred the day previously. Some of the passengers left the ship at Gibraltar, hesitating to continue the voyage. Upon our arrival in Naples, three days later, it was found that the reports of the devastation in the vicinity of Vesuvius had been by no means exaggerated. At Naples, as far as I could estimate, there was an average of some six or eight inches of volcanic dust, which had done much damage and created many discomforts for the inhabitants. Ashes were still falling in considerable quantities, and people were going about with umbrellas for protection. The city was largely emptied of its visitors. We spent a few days at Naples, visiting Pompeii as soon as the railroad connections were opened, having a very realistic, if not pleasant, experience there. Pompeii happened to be so located that for some reason or other the fall of ashes was not so heavy there as in most other points, thus making such a visit possible. I think we were among the very first that had visited the ruins since the eruption.

From Pompeii we went on to the Bay of Salerno, and made the famous journey by carriage along the southern coast of the Sorrento Peninsula, spending the night at the old Capuchin monastery. From Naples we went on to Rome, spending some ten days there, then to Florence for another ten days, and making a similar visit to Venice, thus travelling north with the season. From Venice we went on to the Italian lakes, Switzerland, Strasbourg, and into Germany, where we spent six weeks at a watering place, where we were joined by my uncle and aunt with their automobile, subsequently going to the heart of the Black Forest for the month of July. From the Black Forest we went down the Rhine, stopping over at several

places, rejoining my uncle and aunt at London preparatory to a delightful six weeks' trip through England and Wales in their automobile.

From England we returned to Germany for another month, finally returning to London by way of the Rhine and Holland, and sailing for home the last of October, after what, you will see, must have been a delightful and leisurely journey, as well as a beneficial one in every way.

—Dr. G. R. Tucker has given up his work at the City Hospital, where he has been so many years, to devote his entire time to industrial chemistry and bacteriological work, as the head of the firm of Tucker & Sammet. Their laboratory is at 68 Northampton Street, Boston.—Richard E. Schmidt, of the firm of R. E. Schmidt, Garden & Martin, is the architect for Montgomery Ward & Co.'s new building, which is now being built in Chicago. This building is said to be the largest reinforced concrete structure in the world. —Gulliver was elected in January, 1907, secretary of the section of Geology and Geography of the American Association for the Advancement of Science.

1888.

WILLIAM G. SNOW, *Sec.*, 1106 Penn Mutual Building, Boston.

The Boston *Transcript* of Feb. 4, 1907, states:—

Stone & Webster have issued a manual for 1907 giving brief descriptions of the various properties under their management, together with summaries of capitalization, particulars regarding their properties, the securities and earnings for the year 1906. Among other things this book shows that the combined capitalization of the companies under this management amounts to $105,249,200, of which $47,559,000 is in bonds and $57,690,200 is in stock. The gross earnings of these companies last year amounted to $13,410,779. The net earnings were $5,048,882. The interest charges were $2,035,951; the balance, $3,012,931. The companies paid dividends of $1,196,798.

—Frank M. James has removed from West Lynn to Beverly, Mass., where he is associated with the United Shoe Machinery Company.—Everett S. Jones is teaching in the Allen School, West

Newton, Mass.—F. B. Cole is principal assistant to Charles T. Main, engineer, at 45 Milk Street, Boston.

1889.

PROF. W. E. MOTT, *Sec.*, Mass. Inst. of Technology, Boston.

G. M. Basford has been made assistant to the president of the American Locomotive Company, a newly created position.—J. W. Cartwright is in charge of the Bangor Railway & Electric Light Company, of Bangor, Me.—E. V. French has recently been elected a member of the Lynn Water Board. During the latter part of 1906 Mr. French was elected vice-president and engineer of the Arkwright Mutual Fire Insurance Company. He has been continuously with the Inspection Department of the Associated Factory Mutual Companies since 1892, mainly on special work connected with the study of advanced methods of fire prevention and the development of fire protection. His new work will be closely identified with the old, the Arkwright Company being one of the Associated Factory Mutuals, as they are commonly known. In fact, it is the second company of the Association in point of size, and, together with the Boston Manufacturers' Mutual Fire Insurance Company, of which Kunhardt of our class was elected vice-president last year, carries over one-quarter the total insurance in the nineteen companies. It may not be amiss to mention that since 1890 the science of fire protection has made its greatest strides in this country, although, in spite of this, the appalling waste by fire continues to increase, all of which prevents reduction in rates of insurance on the ordinary property in cities and towns. During this same period, by the encouragement of improved methods of construction and protection,—and French has done his share of the work,—these Factory Mutual Companies have succeeded in reducing the insurance cost on factory property from an average of about 25 cents in the period immediately preceding 1890 to an average of but little over 7 cents per hundred dollars of insurance, the actual cost in the last ten years varying for the different classes of property between $3\frac{1}{2}$ and 10 cents

per hundred dollars of insurance.—Henry Howard has lately returned from a trip abroad, taken largely in business interests.—W. S. Johnson has resigned his position as assistant engineer to the Massachusetts State Board of Health, and will enter private practice. He is now at work on plans for a water purification plant for the city of South Norwalk, Conn. The works will have a capacity of 3,000,000 gallons per day. His office will be at No. 101 Tremont Street, Boston.—W. H. Kilham has taken a prominent part in the preparation of the recently published "Report made to the Boston Society of Architects by its Committee on Municipal Improvements." The purpose of this committee was "to collect and study any plans . . . for making Boston now, and, as it grows larger, more convenient for its inhabitants, better adapted for commerce, and more beautiful in appearance." In a "Diagnosis of the Case" Kilham gives his opinion of the reason for the unsymmetrical growth of the city. It is caused: "First, by the great areas of unoccupied space (land and water) which lie in the very heart of the city, cutting off sections from each other and preventing communication. Second, by too restrictive building laws, both as to height and material, which are largely responsible for the non-development of some of these lands, although at the same time they allow a belt of inflammable dwellings in the outer wards, and drive many people to Brookline, Newton, Cambridge, etc., where their taxable property as well as their good qualities of citizenship are lost to Boston." These ideas are then enlarged upon, and the "Diagnosis" closes with the following pertinent remarks: "In short, to improve Boston, consolidate the population by filling the gaps in the city plan. Avoid congestion by enlarging the business district, and keep within the city limits the prosperous and educated class that now goes to the suburbs." An inner and an outer system of boulevards encircling the city and connecting the nearer suburbs are among the remedies suggested, as well as some changes in the development of the Fenway. That '89 has played an important part in the study of a question which is bound to compel more and more attention on the part of the people of Boston is attested further by the part which J. E. Chandler took in the report of this same committee. On April

4, in connection with the Boston Library Free Lecture Course, Kilham will deliver a lecture on "Spanish Cathedrals."—W. W. Lewis is now chairman of the Board of Water Commissioners of Hyde Park, Mass.—At the January meeting of the American Institute of Architects, held in Washington, D.C., J. L. Mauran was elected a director of the Institute.—W. G. Plumer is in the leather business, and his address is Girard, Penn.—Through misinformation and ignorance on the part of the class secretary a reference was made in the last number of the REVIEW which implied that F. E. Sanborn is still at Tufts College. Such is not the case; and in a letter recently received he states that in addition to his regular work as Professor of Industrial Arts in Ohio State University he is now a member of a recently organized company for carrying on a consulting engineering practice.—A new reprint of "Industrial Chemistry," by Professor Thorp, will shortly appear from the press of the Macmillan Company. Professor Thorp is this year in charge of that portion of the second-year work in Analytical Chemistry taken by Courses V., VIII., X., and XII.—G. C. Wales has recently dissolved one partnership and formed a second! He was married in April last, and is now in business on an independent basis at No. 15 Beacon Street, Boston. —Jasper Whiting is at Rumford Falls, Me., engaged in experimenting upon a new chlorine process for the manufacture of caustic soda and bleaching powder.—Frederick E. Woodbury is connected with the Milwaukee Coke and Gas Company. His address is 23 University Building, Lock Box 1619, Milwaukee, Wis.—Sanford E. Thompson has recently removed into new offices at Newton Highlands, Mass. During the past year he has been engaged upon projects relating to concrete and reinforced concrete in Massachusetts, New York, and Pennsylvania. "Concrete, Plain and Reinforced," by Taylor and Thompson, is now selling in its sixth thousand,—a somewhat unusual record for a technical book.—Schuyler Hazard is with the New York, New Haven & Hartford Railroad, in charge of four-tracking and electrifying the Harlem Division.—J. P. B. Fiske, vice-president of Fiske & Co., Inc., is located in the Flatiron Building, New York City, but his family is still living in Auburndale, Mass.

1890.

GEORGE L. GILMORE, *Sec.*, Lexington, Mass.

The following is from the Boston *Post* of February 23d:—

Professor Gary N. Calkins, Ph.D., a graduate of the Massachusetts Institute of Technology in 1890, and for several years professor of invertebrate zoölogy at Columbia University, has just been appointed to the new chair of protozoölogy, the study of the lowest form of animal life, recently created at Columbia, at the last meeting of the trustees.

This chair is the first of its kind in the United States and the second in the English-speaking world, the first, at the University College at London, having been founded only a few months ago.

1892.

PROF. WILLIAM A. JOHNSON, *Sec.*, Mass. Inst. of Tech., Boston.

The following changes in address have been received since the last issue of the REVIEW. B. P. DuBois, United States steamship "Missouri," care Postmaster, New York, N.Y.—P. A. Hopkins, 801 Provident Building, 50 South 4th Street, Philadelphia, Pa.—S. B. Ely, 5122 Pembroke Place, Pittsburg, Pa.—A. G. Randlett, Pacific Coast Oil Company, Division B, Oakland, Cal.

1893.

FREDERIC H. FAY, *Sec.*, 60 City Hall, Boston.

At the Boston City Club, January 23, an informal luncheon was given by Leo W. Pickert, class president, to Joseph W. Ellms, of Cincinnati, Ohio. Ellms has been located at Cincinnati for the last nine years, and for eight years has been chemist for the Commissioners of Water Works of that city. Present at the luncheon were Bemis, Crosby, Dawes, Ellms, Fay, F. B. Forbes, Keith, A. L. Kendall, H. A. Morss, and Pickert.—An informal class dinner was held at the Boston City Club on the 22d of March. In the evening,

upon the invitation of Charles Garrison, '91, the members attended a private recital of the choralcelo at Chipman Hall, Tremont Temple. After the recital the members adjourned to the Boston City Club, where the remainder of the evening was spent in a social way. Those present were: Barnes, Blood, S. A. Breed, Densmore, Fay, Glidden, Keith, F. B. Kendall, Keyes, Lamb, E. S. Page, Pickert, Reynolds, Taintor, Taylor, and Thorndike ('94).—Albert Richard Beddall, M.D., is located at 5319 Chestnut Street, Philadelphia, Pa.—Maurice B. Biscoe, architect, who removed to Denver, Col., not long ago, and has opened an office in the Commonwealth Building of that city, is the newly elected secretary of the Rocky Mountain Technology Club.—Farley G. Clark is superintendent of motive power of the Pennsylvania, New York & Long Island R.R. His address is Fourth and Front Streets, Long Island City, N.Y.—Nathaniel R. Craighill has a position as electrical and mechanical engineer with the Mechanical Appliance Company, Milwaukee, Wis.—W. W. Crosby is with F. W. Dean, 53 State Street, and devotes his time principally to problems connected with the organization and design of textile mills.—Herbert N. Dawes, vice-president of the Nightingale & Childs Company, has recently become secretary, also, of the Dominion Asbestos Company, Limited. His office has been moved to 205 Congress Street, Boston.—James Vaughan Dennett, cabinet maker and furniture designer, formerly of Hingham, is located at South Framingham, Mass.—Something of Arthur Farwell's work in behalf of American music, as composer, lecturer, and editor of the *Wa-Wan Press*, is already known to the readers of the REVIEW. By diligent and painstaking research he has brought to light and preserved in permanent form much in American folk-song. Speaking of a lecture given by him on the 22d of March, the Boston *Transcript* of the following day said:—

A brilliant audience assembled at the Tuileries last evening at the joint meeting of the American Folk-lore Society and the American Music Society to listen to the lecture of Arthur Farwell on "American Music." It is a subject about which there has been much controversy, the faces of many musicians being unalterably set towards Europe. This is no longer necessary, for in almost everything else we have set up standards of our own. We

have, however, a great cosmopolitan country, a bringing together of many elements, each of which is giving its best to us in divers ways, and will, if called upon, give its best to us in the way of music. Illustrations on the piano showed that Russia, Scandinavia, France, Germany, and the like have schools in which not only the folk-song, which is the basis, but the treatment, is peculiar to that nation. We can recognize many of these styles at once.

In America the case is very different, for not only are there the many foreign elements which are being assimilated, but there are many sources of folk-song. In the South there is the creole and the negro. Dvořak found among the Seminoles melodies that pleased him, although his great symphony work was done with negro melodies. In the West there is the cow-boy influence which has developed its rude songs, there are everywhere the Indians, and on the West coast there is the Spanish. Each of these has its own characteristic thematic material for music, and all have claim for recognition. The speaker, therefore, believes that the time has come for an American music, and that it will be an expression of liberty, just as all our institutions are founded on the same broad principle.

The musical illustrations of the evening were, the greater portion of them, settings made by Mr. Farwell, selecting themes which are well known or have been found by him in his researches. The numbers evinced surprising research, and demanded much travel and study for their collection. They included "Moanin' Dove," a negro song, a theme from Vancouver, two settings of Omaha melodies, one of which, "The Old Man's Love Song," is particularly striking and plaintive; "Bury me out on the Lone Prairee," a cow-boy melody, a suite of airs from a ceremony of the Omahas and a Navajo war dance. These in part were presented by Mr. Farwell at the piano, while in the way of a surprise to the company, Clarence Wilson, who has evinced great interest in the development of this work, sang with splendid voice the darky song, the cow-boy song, one from the West coast, with its prevailing Spanish rhythm, and the striking Zuñi invocation to the sun.

—Ira J. Francis is sales agent of the John A. Roebling Sons Company at 326 East Market Street, Los Angeles, Cal.—Edward McKim Hagar, president of the Universal Portland Cement Company, will be located after May 1 in the Commercial Bank Building, Chicago. His company has furnished about eighty thousand barrels of cement for the Montgomery Ward & Co.'s new building in Chicago. This

building is said to be the largest reinforced concrete structure in the world.—Charles H. Johnson is the civil engineer in charge of the making (in concrete) of a large relief map of the Panama Canal at the Jamestown Exposition.—Mr. and Mrs. Charles W. Ellis, of Newtonville, Mass., announce the engagement of their daughter, Miss Annie Claflin Ellis, to Frederic Hale Keyes.—The address of Albert T. Marshall, refrigerating engineer, is 630 Capitol Avenue, Hartford, Conn.—Benjamin M. Mitchell has returned from Johannesburg, South Africa, where for several years he has been assistant general manager for Fraser & Chalmers, Limited. His present address is 244 Lafayette Avenue, Passaic, N.J. At the Technology Club of New York, in March, Mitchell gave a talk upon his experiences in the Boer War, in which he held a commission in the British army.—Edward Gardner Pease is engaged in the manufacture of engines, steam fitters' supplies, and cotton and linseed oil machinery at the Buckeye Iron and Brass Works, Dayton, Ohio.—Edward Bryant Randall, formerly of Chicago, has gone into mining work. His address is care Big Creek Gold Mining Company, Limited, Salmon, Ida.—Charles M. Spofford, professor of civil engineering at the Polytechnic Institute, Brooklyn, N.Y., intends to spend the summer abroad, in company with his family, visiting England, France, Switzerland, where most of their time will be spent, and Germany.—Charles W. Taintor, formerly bond salesman with William A. Read & Co., has recently become associated with the firm of Tucker, Hayes & Co., bankers and brokers, in charge of their newly opened bond department.—S. Edgar Whitaker, electric railway engineer, is office manager for The American Society of Mechanical Engineers at the new Engineers Building, 29 West Thirty-ninth Street, New York City.

1895.

H. K. Barrows, *Sec.*, 6 Beacon Street, Boston.

Haven announces that he will continue his association with Mr. F. W. Dean, formerly of Dean & Main, at 53 State Street, Boston,

for the maintenance of a department in refrigerating engineering and its allied branches. He will give attention to the design of cold storage warehouses, power houses, cooling and freezing plants, to reports, tests, consultations, etc. Haven has had an extensive experience in matters pertaining to refrigeration gained with the Quincy Market Cold Storage Company and later with Dean & Main.—W. S. Williams has been recently made purchasing agent for the Arnold Print Works at North Adams, Mass. He announces the birth of a daughter, Florence Dorothea, born January 7.—Coburn is with the Illinois Steel Company at their South Works, learning the running of an open hearth furnace. His address is 88th and Buffalo Avenue, South Chicago, Ill.—François E. Matthes writes the secretary as follows:—

> My address from now on will be United States Geological Survey, Washington, D.C. Have completed my Yosemite map, and am starting back to the East via the Southern States, making a number of stops on the way to inspect topographic field parties, especially in Arizona, New Mexico, and Texas. Wish I could be present at the class meeting.

—H. D. Jackson reports change of office address from 4 State Street to 88 Broad Street, Boston, where he will have enlarged office room and increased facilities for work. He is busy as an electrical engineer, making power tests and investigating plants for brokers, etc.; is also doing experimental work to improve the operation of a weaving machine.—Dyer is a contractor and builder, with offices in the Albany Trust Company Building at Albany, N.Y. After leaving the Institute, he was for some time with Jonathan Clark & Sons, builders, of Chicago (of which firm F. W. Clark, M. I. T. '80, is a member), and superintended the construction of buildings in various parts of the country, notably the Albany Savings Bank Building and Ten Eyck Hotel in Albany, the Park Building in Pittsburg, etc. Some six or seven years ago Dyer started in for himself at Albany, and is now doing work all through Eastern and Southern New York. He has recently completed "The Hampton" in Albany, a very attractive-looking eight-story hotel, with brown sandstone front and of the latest up-to-date form of construction.—Hunt is

once more in Boston, being located at 84 State Street, Room 521, as assistant electrical engineer for the Old Colony Street Railway Company and Boston & Northern Street Railway Company. For the last three years he has been at Manchester, N.H., acting as engineering assistant to the general manager of the Manchester Traction, Light, and Power Company. This company is one of the most important on the Merrimac River, and operates four water power plants and one steam power plant. One of their newer plants is that at Garvin's Falls, one of the finest privileges upon the Merrimac River. Hunt's new field of work is largely along executive lines, although there is also considerable engineering work in connection with the operation and maintenance of these two roads.—Howe is at Columbus, Ohio, as resident engineer, in charge of the construction of the Water Purification Works Pumping Station.—Swift is department engineer on the Board of Water Supply for New York City, his present address being Cornwall-on-Hudson, N.Y.—Gay reports change of address to Union Club, New York.—Gardiner is now at Baltimore, 319 Equitable Building.—Farquhar is at Santa Monica, Cal.—Wolfe's address is now 16 Orange Avenue, Cranford, N.J.—Alden is at Hotel Lincoln, Columbus, Ohio. He is in charge of long-distance work of the American Telegraph and Telephone Company in Ohio.—Ames is at 17 Fairfield Place, Yonkers, N.Y.—Blodgett reports change of address to 24 State Street, New York.—J. H. Bourne is now at 2 St. James Avenue, Bradford, Mass.—Brackett is still with the J. L. Mott Iron Works. They have recently moved to 120 5th Avenue, N.Y.—S. K. Clapp is at Brown Station, N.Y., where he is engaged as assistant engineer on the Board of Water Supply for New York City.—C. H. Clark has recently moved his business to 88 Broad Street, Boston, Mass.—Crafts is now at Oberlin, Ohio.—Dickerman is at 1110 Mound Street, Madison, Wis. He is assistant professor of chemical engineering at the University of Wisconsin.—L.A. Abbot is now in the engineering department of the American Locomotive Company at Schenectady, N. Y.—McManus is in contracting work, principally on railroads in Canada, and is now at St. Casimer, Portneuf County, Quebec.—Libby is back again in the

East, and is at 328 Forest Park Avenue, Springfield, Mass.—Sherman has given his time since graduation chiefly to the compiling, editing, and publishing of technical books, and has of late made a specialty of engineering and mechanical catalogues. This double training, in technical work and in the details of publishing, appears to afford a basis for effective catalogue work, and manufacturers of machinery appreciate the advantage of having the preparation of their catalogues in the hands of a technical gradate trained in advertising and publishing methods. The work appears to constitute a unique and valuable specialty, for which, however, many years of close preparatory work have been requisite. Sherman's offices are at 6 Beacon Street, Boston.—A meeting of the class was held on February 5 at the Technology Club, there being present F. A. Bourne, J. H. Bourne, Hunt, Jackson, President E. A. Tucker, and the secretary. It was voted to amend Article I. of the Constitution by striking out the words, "All students who have taken a majority of studies with the class of '95 for two or more years," and substituting, "All students who have appeared upon the records of the Institute as taking one or more subjects with the class shall be considered members, except when electing otherwise." So that this article will now read, "All students who have taken a degree with the class shall be considered its members, and all students who have appeared upon the records of the Institute as taking one or more subjects with the class shall be considered members, except when electing otherwise." Under Article VIII. of the Class Constitution the above amendment to Article I. is now operative, having been approved by vote at two successive meetings. A notice of this change will shortly be sent to all members of '95 (as thus redefined) to procure an up-to-date list of these. It was also voted to instruct the secretary to call to the attention of the Association of Class Secretaries at some future meeting this action of the class in thus enlarging its membership by including men who have been affiliated with it, as a measure which should perhaps be considered for adoption by other classes. A dozen or more men expressed their intention of being present at this meeting, but, owing to the severe storm which prevailed, did not

appear. Although numbers were small, a very pleasant evening was spent, during which a telegram of greeting was received from Lonngren at Pueblo, Col., as follows: "Greetings from the Rocky Mountains to Class of Ninety-five."

1896.

EDWARD S. MANSFIELD, *Sec.*, 70 State Street, Boston.

On the 15th of January E. C. Hultman was married to Elizabeth Blake at 219 Commonwealth Avenue, Chestnut Hill. After May 1 Mr. and Mrs. Hultman will be at home at 219 Washington Street, Quincy, Mass.—N. C. Grover, formerly of Washington, D.C., has recently moved to 81 North 18th Street, East Orange, N.J.—On March 22 H. A. Pressey, of Washington, D.C., delivered an address before the National Geographic Society of Washington, on "Utilizing the Surface Waters of the United States for Power."—On Sept. 13, 1906, a son was born to Mr. and Mrs. J. F. Brooks, who live in North Hanover, Mass.—Word from A. W. Crawford announced that he was married early in 1906 to Miss Cohen, and is living in Philadelphia, Pa., where he is practising law.—Lewis T. Cannon is engaged in the practice of architecture in Salt Lake City, Utah.—A. L. Drum has left the Chicago & Milwaukee Electric Railway, and is now in business as a consulting engineer, with an office in the American Trust Building in Chicago, Ill.—A. K. Downes has left the Weber Railway Joint Company, and has accepted the position of assistant construction superintendent with J. G. White & Co. of New York.—Henry Gardner, of Pittsburg, Pa., was married to Miss Julia Streeter, of Concord, N.H., on Sept. 29, 1906. They are now residing at "The Cornell" on Thomas Boulevard, Pittsburg.—On Oct. 23, 1906, Max Hellman was married to Miss Helen Schwab. Their home address is now 4256 West Pine Street, St. Louis, Mo.—James H. Haste, manager of the Kodak Park Works of the Eastman Kodak Company, was married on Nov. 25, 1906, to Miss Hannah M. Hinchcliffe, and now resides at 4 Gorsline Street, Rochester, N.Y.—Henry A. Sher-

man was married to Miss Lillian J. Wright on Jan. 2, 1907. Their home address is 9 Chauncy Place, Jamaica Plain.—John H. Willis was married to Miss Gertrude A. Ball on Oct. 10, 1906. Mr. and Mrs. Willis are now at home at 1430 Arch Street, Berkeley, Cal.—On May 1 the secretary contemplates changing his office from 70 State Street to 39 Boylston, where he will be glad to see any '96 men or receive news of their whereabouts.

1897.

JOHN A. COLLINS, Jr., *Sec.*, 74 Saunders Street, Lawrence, Mass.

The secretary has sent out a circular letter with a reply data sheet, and he asks that members return these sheets promptly, thus aiding him in his work.—John E. Carty (I.), formerly with the sewer department, city of Boston, is now in the engineering department.—Charles L. W. Pettee (V.) is a member of the Hartford Laboratory Company, Hartford, Conn., that does general analytical work, particularly steel, iron, coals, and oils. He has twice received the appointment of "State Chemist," each time being for two years. In March of this year he was appointed by the Bureau of Internal Revenue, Treasury Department, chemist for denaturants for the Connecticut district.—James M. Brown (II.), formerly with the Stirling Consolidated Boiler Company, Mansfield, Ohio, is now assistant general manager of the Casey-Hedges Company, Chattanooga, Tenn.—William E. Reed (VI.), who is with the Westinghouse Electric and Manufacturing Company, has direct charge of the design of all induction motors put out by this company.—Harry B. Hunt (II.) is manager of the electric locomotive and truck department of the American Locomotive Company, Schenectady.—A. E. Kimberly, who is in Columbus, Ohio, with the Ohio State Board of Health, working on sewage purification and water softening, has since January of this year been working in collaboration with the United States Department of Agriculture, Bureau of Plant Industry.—Walter Humphreys (II.), registrar of the Institute, has been appointed instructor in mechanism, in addition to his regular duties.

—T. C. Atwood (I.) is designing engineer with the Board of Water Supply, New York City.

1898.

PROF. C.-E. A. WINSLOW, *Sec.*, Hotel Oxford, Boston.

Coffin is now instructor in physics in the college of the City of New York. His home address is 17 Lexington Avenue.—Page has moved out to Sedalia, Col., acting there as resident engineer of the E. I. Du Pont Company.—Zimmerman has left Chicago, and is now at 1101 Hennen Building, New Orleans, as contracting agent for the American Bridge Company of New York.—Dr. F. L. Richardson has taken an office at 1074 Boylston Street, near Massachusetts Avenue.—Shedd is now at 6512 Stewart Avenue, Chicago. He is inspector of iron bridge erection for the Chicago & North Western.—Byam is superintending the construction in the electric zone of the Grand Central Station, New York.—Streng has moved to Louisville, Ky., as chief engineer of the Kentucky Electric Company, with address at 1525 Third Avenue.—Treat sends his address as 398 Spring Street, Portland, Me.—Philbrick has left Chicago for the west coast, and may be reached at the Spokane Club, Spokane, Wash.—Sawtelle is now with the American Telephone and Telegraph Company, 125 Milk Street, Boston.—Everett has moved to Seattle, and is practising architecture at 426 Walker Building, Seattle, Wash.—Dr. H. W. Jones has accepted an appointment as surgeon in the United States army, and is now on duty in Manila.—Hayden is now in Denver, at 303 Colorado Building.—Monteith has left Boston for the Pacific coast, to take an appointment as superintendent of parks in Portland, Ore.—Spaulding sends a new address, 28 West Street, Pittsfield, Mass. He is junior member of the firm of Barnes & Spaulding, civil engineers and surveyors.—Bacon is locating engineer for the La Dicha & Pacific Railroad at Apartado 25, Acapulco, Guerrero, Mex.—Booth is also in Mexico with the Montezuma Copper Company at Nacozari, Sonora, Mex.—Bergen has travelled in the opposite direction, to take a position with the Yukon Consolidated Gold Fields Company and North-west Hydrau-

lic Mining Company at Dawson, Yukon, Canada (Box 940).—Draper is now at Chrome, N.J., with the United States Metals Refining Company.—Crowell has returned to Boston as salesman for the Westinghouse Electric and Manufacturing Company, 716 Board of Trade Building.—Thayer has been appointed instructor in structural engineering at the Carnegie Technical Schools, Pittsburg. His address is 712 S. Linden Avenue.—Strickland wrote as follows, December 4, from the office of the San Juan Light and Transit Company, San Juan, Porto Rico:—

Have just spent a few hours reading the July and October issues of the REVIEW, in the former of which you had me down as being in the construction department of the chief engineer of the Susquehanna Central Railway Company of Pennsylvania. As a matter of fact, *I was the chief engineer*, being the representative of J. G. White & Co. (construction department). However, that is over, and I am now J. G. White & Co.'s engineer for Porto Rico.

I have charge of the construction of a new hydro-electric plant of 3,000 H. P., including 24 feet concrete dam, 2,300 feet tunnel, power-house transmission line, and sub-stations, etc. Am also making surveys for the extension of the above railroad to be electrically operated. I am wrestling with Spanish and ignorant engineers and laborers, but expect to get results soon.

On the 26th of December Strickland was married at St. John's Church, San Juan, to Miss Margaret Field Lewis, daughter of Mrs. George Lewis.—Danforth, in response to a pressing request for information, from the secretary, writes as follows:—

Up to about two years ago I was in Pittsburg, following the straight and narrow path of an assistant mechanical engineer in the offices of the Westinghouse Electric and Manufacturing Company. My health was not of the best, thanks to the smoky climate and the confinement, so I came East, and became an inspector on a large concrete sewer which was being put in for the city of Salem. The work agreed with me; and somehow I seemed to agree with the engineers in charge well enough that I was given charge in succession of the placing of some 2,000 feet of 5-foot C. I. pipe across a neck of Salem Harbor, then of about 10,000 feet of 30-inch C. I. pipe in water from 8 feet to 35 feet deep at low tide, and finally of two sections,

about 4,000 feet, of 60-inch concrete sewer through bad ground near tide-water. The placing of the 30-inch pipe out into the harbor was specially noteworthy in that the joints in the pipe were all made with hot lead poured over jute, just like a water-pipe joint, and also because there is but one other piece of work of this sort on the Atlantic coast.

Late last fall I made some business arrangements by which I started a general contracting business, specializing on concrete work, and have so far done a section of 48 inch concrete sewer for the city of Salem and a highway bridge at Waters River, Danvers, Mass., for Essex County, and I am figuring several jobs which will be let next month, among them being a concrete dam, another piece of concrete sewer, and the concrete pieces for an iron bridge.

—On Saturday, March 2, a very pleasant reunion was held at the Tech Union in joint session with the ten-year class of 1908. The following account is extracted from the *Tech* of March 4:—

'98 and '08 started a new custom in great style Saturday evening at their Kommers at the Union. Ninety men were present, twenty-two of them being '98 men, and five members of the University of Maine basket-ball team. Professor C.-E. A. Winslow, secretary of 1898, and H. T. Gerrish, president of 1908, acted as toastmasters.

The speakers were Professor Winslow, A. A. Packard, H. L. Coburn, W. H. Godfrey, K. W. Waterson, and D. W. Edgerly, of the class of 1898, and G. T. Glover and Kurt Vonnegut, of the class of 1908.

During the dinner a telegram was sent to the North-western Alumni Association, which was holding a dinner at the University Club, Chicago. The telegram said: " '08 and '98 dining at Tech Union pause before their sixth beer to send greetings."

Professor Winslow gave a new definition for Tech spirit in his speech. He said that the Tech spirit is the scientific spirit, which no one but scientists and engineers possess. The scientist feels that there are certain facts concerning the world, and he learns these facts, so as to control the world. The world is a fact, and, far from being ignored, must be studied.

It used to be a fact that the talkers and thinkers ran the world, but now the scientists and engineers, who know facts and go by them, are coming into power. These men are working to make the world reasonable.

"At Yale," said Professor Winslow, "they have a custom of standing up and saying, 'For God, for Country, and for Yale.' It is a fine thing, but

I think we can have a better motive for our life,—'For Truth, for Service, for Technology.'"

1899.

HERVEY J. SKINNER, *Sec.*, 93 Broad Street, Boston.

Arthur I. Kendall has resigned his position at Panama, where he was connected with the Board of Health Laboratory of the Isthmian Canal Zone, and is now director of the Florida State Bacteriological Laboratory.—W. A. Kingman reports the arrival of a young lady into his home on Dec. 23, 1906. The new-comer bears the name Elizabeth Alden Kingman.—A. A. Reynolds died at Altadena, Cal., on Sept. 14, 1906, aged thirty-three years. Reynolds was also a Williams ('97) man, and after leaving the Institute was an instructor at Williams.—W. S. Newell was married Jan. 23, 1907, to Miss Caroline Elizabeth Moulton, daughter of the Hon. George Moulton, of Bath, Me. The wedding took place at the Central Congregational Church, Bath. Mr. and Mrs. Newell made an extended trip through Cuba immediately after their marriage.—Harry L. Morse, now a lieutenant in the United States Army, is located at Fortress Monroe, Va.—W. H. Sutliff, who is with the Trussed Steel Concrete Company, has been transferred from Detroit to Cleveland.—Among the bulletins of the United States Geological Survey may be found several references to the work of W. C. Phalen. Bulletin 285 contains a paper by Phalen on the coal resources of the Kenova Quadrangle in Kentucky. In the same bulletin are accounts of Phalen's work on the clay resources of North-eastern Kentucky and the copper deposits near Luray, Va. Another paper by Phalen appeared in *Economic Geology*, July, 1906, on the "Origin and Occurrence of Certain Iron Ores of North-eastern Kentucky." Phalen also reports the birth of a "skidoo" baby, Walter Clifton, born Sept. 23, 1906.—W. Scott Matheson's present address is Seattle, Wash. He has recently gone to Seattle from Nevada.—Announcement was received at the secretary's office recently of the death of James S. Barber, Sept. 15, 1900.—Mr. and Mrs. W. O. Sawtelle are receiving congratulations on the birth of a daughter, Louise Kaler Sawtelle,

Jan. 20, 1907.—C. Gardner Barry writes from New York that he is still spending most of his time in the Pennsylvania tunnels, and that the compressed air agrees with him.—Among the recent publications of the United States Geological Survey are Water Supply and Irrigation Papers, No. 189 by E. B. Phelps, on "The Prevention of Stream Pollution by Strawboard Wastes," also No. 185 by E. B. Phelps and C.-E. A. Winslow, on "Investigations on the Purification of Boston Sewage." The latter paper contains a history of the Sewage Disposal Problem.—Haven Sawyer was in Boston for a few days in March. Sawyer is at present developing a mining property in Idaho.—The engagement has lately been announced of Edwin F. Samuels to Miss Kate Tindall, of Washington, D.C. Samuels has resigned his position as examiner in the United States Patent Office, and is now with Stuart & Stuart, patent attorneys, in Baltimore.

1900.

RICHARD WASTCOAT, *Sec.*, Dedham, Mass.

The secretary's want ad. in the last number, asking for information and items of interest about class members, developed no "unsolicited testimonials." Now the question arises whether to increase the space or try some other method. The latter would seem to be the course to take, and the secretary is open for suggestions. In running over a catalogue that the secretary has made up, showing the location of the men according to States, he thought it might be interesting to start Down East, in Maine, and take a trip around the United States. Starting in Maine, we find Burroughs (X.) in Rumford Falls and Moody (XIII.) in Bath. Jumping over to New Hampshire, Pitcher (II.) is in Keene, Richardson is in Pelham, Everett (I.) and I. Osgood (II.) in Concord. Then down to the "Hub," Bowditch, Brown, Briggs, Charles, Cotting, Gibbs, Jennings, Russell, Stearns, Wastcoat, Wedlock, Weeden, and Cutting, all of Course I.; Ashley, Burnham, Graff, Hodson, Learnard, Lingley, Smith, Walworth, Warren, and Horton, of Course II.; Emery (III.), Beekman, Kattelle, and Rand, Course

IV.; McCrudden, Lewis, and Melcher, V.; Neall, Penard, and Corliss, VI.; Peck, VIII.; Draper, Howe, and Weeks, IX.; Brigham, X.; Simpson and Wentforth, XIII. Scattered over the State, Adams and Ripley (V.) are in Lawrence; Conant (VI.), Newburyport; Brock (VIII.), Worcester; Fitch (V.), Peabody; Hapgood (VI.), Lynn; Crowell (I.), East Dennis; and Borden (II.), in Fall River. Rhode Island has French (V.) in Providence and Sherman (IV.) in Westerly. Ansonia is probably the most attractive place in Connecticut, for Suhr (II.) and Schneller (II.) were there at last accounts. "Manhattan Isle" is being well cared for by Hamlin, Harps, Jouett, Searle, Redman, Suter, Tuck, and Tudbury, of Course I.; Brooks, Goodridge, McGowan, and Zeigler, Course II.; Clow, Pigeon, and Van Merrick, IV.; Ellis, V.; Blair, Hall, Keith, and Hopkins, VI.; Brown, X.; Barney and Wyman, XIII. Up State there is Stone (I.) in Cold Springs, Hooper (XIII.) and Fulton (VI.) in Albany, Chase (II.) and Ingalls (II.) in Syracuse, Hopeman (IV.) in Rochester, Silverman (VI.) in Olean, Sanders (V.) and Vogel (I.) in Buffalo. Going over into Jersey, Reimer (I.) is in East Orange, and Edson (II.) in Elizabethport. In Pennsylvania, Philadelphia leads in numbers, with Miller, I.; Maxfield, II.; Brown, VI.; Conant, VII.; Hussey, Macpherson, and Rossmassler, XIII. Scattered among the other cities, Campbell (III.) and Witherell (XIII.) are in Harrisburg, Seaver (I.) in Pittsburg, Briggs (XIII.) in McKeesport, Price (IV.) in Pencoyd, Badlam (III.) in Steelton, and Morgan (VII.) in York. Keeping further South, Luyties (II.) is in Baltimore, Md., and Stratton (IV.) and Southworth (IV.) are in Annapolis. Smith (I.), Gardner (II.), Lawrence (IV.), and Cady (VI.) are in Washington; Thurber (I.) and Dean (VI.) are in Norfolk, Va.; Ashley (X.) is in Newall, W. Va.; Collier (VI.) and Walker (IV.) are both in Atlanta, Ga., Chaffee (IV.) in Birmingham, Ala., Porter (XI.) in New Orleans, La.; Littlefield (VI.) is in Nashville, and Stevens (III.) in Copperhill, Tenn. Coming back into the Central States, Brown (V.) and Buffum (II.) are in Cleveland, Ohio, Mead (X.) in Dayton, Rapp (IV.) and Thayer (V.) in Cincinnati, and Dorey (III.) in Newark. Going west into Indiana, Davis

(IX.) is in Lafayette, and Fosdick (XI.) in Indianapolis. In Illinois, Chicago leads all the Western cities, claiming Chase and Leonard, I.; Schmidt and Hough, II.; Jackson, IV.; Cayvan and Holbrook, V.; Barton and Herbert, VI.; Hall, VII.; Merrell, X. The remaining States west of the Mississippi claim only one or two men, and there are many miles between them. Root (III.) is in Hazel Green, Wis., Balcom (V.) in Ann Arbor, and Perry (II.), Grand Rapids, Mich. In Minnesota, Sperry (II.) is in Minneapolis. Manley (II.) is in Kansas City, Kan., and Clausen (IV.) in Davenport, Ia. Down in Texas, Conant (VI.) is in Dallas, and Paul (II.) over in Mesilla Park, N.M. In Colorado, Gauss (IX.) is at Colorado Springs, Batcheller (III.) in Smuggler, and Moulton (III.) in Telluride. Johnson (III.) is at Millers, Nev., and Roberts (III.) at Great Falls, Mont. Down the Pacific Coast Seattle, Wash., leads with Allen and Frink, II.; Bugbee, III.; and Hunt, XIII.; and N. Yakima claims Oxnard, I.; Plummer (III.) is in Placerville, Cal., Barker (VI.) in Ventura, White (I.) in Los Angeles, Cook (I.) at Cavite, P.I., and Knight (V.) in Porto Rico. And, in foreign countries, Gallagher (VI.) is in Germany, Stewart and Ford (IV.) in France, Hirokawa (VI.) in Japan, Patch (X.) in Syria, Mott-Smith (VI.) in Italy, Kendall (VII.) in Panama, Shapley (X.) in Cuba, Clary, Elbert, and Tweedy (III.) in Mexico, and Keay (II.), Leach (III.), and Johnson (X.) in Canada.—Brooks (II.) writes as follows:—

All that I can give you now is that I have been commissioned lieutenant in the Naval Militia as engineer officer of the United States steamship "Newark" (900 H. P.), and in compliance with the recent law I have been examined, and now hold a license as Marine Chief Engineer for unlimited horse-power.

The Naval Militia, as I have said before, offers an exceptional opportunity to young men who desire to augment their theory by a practical experience in the highest branch of steam engineering, requiring, as it does, one night per week during the winter for drill and quizzes on operating questions. In the summer a two weeks' cruise on a modern man-of-war gives that familiarity with maintenance, operation in emergency, and also the handling of men, which a technical man cannot afford to be without.

Any S.B. can start and stop a large engine or a pump or a battery or boilers, but it requires a life-sized man to keep them running under the difficulties which arise under ordinary conditions.

—And Stearns (I.) has been persuaded to add the following:—

The secretary, after several vain attempts has finally succeeded in drawing from his friend Stearns a meagre and commonplace account of his trip abroad during two months last summer,—not that there was anything especially interesting in it to the REVIEW, but because the secretary had not heard about it first hand himself, and took this means of satisfying his curiosity, and perhaps incidentally padding his contribution to that Tech. editorial.

The trip was most commonplace,—no hairbreadth escapes by sea or land, no journeys into the "Tenderloin" districts of the great cities visited, no romance to cause gossip at home. In fact, the trip was conducted on Puritanical principles throughout, and was more in the nature of a post-graduate course abroad, which wasn't confined to any one subject in particular.

Sailing from Boston, via White Star Line, on July 5, the good ship "Arabic" encountered nothing but smooth seas for eight days, affording a splendid opportunity for field sports on her broad decks, which was eagerly taken advantage of by a huge field of entrants of both sexes. The south coast of Ireland—the first land sighted—was green as usual, its rugged shore line rising rapidly from the sea till it faded into mountainous heights in the distance, while at its foot the small fishing vessels with their red-painted sails lent a certain harmony of contrast to the scene. Save for a stop off Queenstown to land passengers, nothing of moment occurred till noon of the ninth day, when the ship drew alongside the landing stage at Liverpool and the bustle of travel began.

Liverpool was left, with but a cursory glance for the great metropolis, taking a look at Manchester and its great ship canal on the way. Grim London, after a week, gave place to a week's outing "en automobile" in the south-west of England, followed by a few days in London to get back to earth again. Then came Paris, Strasburg, Neuhausen, Constance, Munich, Vienna, Dresden, and Berlin in succession, each of the large cities conspicuous for its clean, broad, and generally well paved streets, its fine public and private buildings, its art and historical collections, and perhaps above all, in contrast with the majority of American cities, its

lack of hoodlumism and apparent earnestness of purpose of its younger generation.

With a parting "Auf wiedersehen" from the deck of the "Kronprinz Wilhelm," Germany was left behind, and it was not without a sense of relief that Edinburgh was reached a few days later, where a little "Scotch" could be enjoyed after the struggle with French and German on the Continent. A whirlwind tour of the Scottish Lakes proved both interesting and instructive, making "The Lady of the Lake" take on a reality it never did in the public schools at home. A look into Wales and grand old Conway Castle finished sight-seeing abroad, and the "Republic," as she steamed into Boston Harbor eight days later at sunset, revealed, as a setting for what had gone before, the most beautiful harbor in the whole world."

—And now a glimpse from the Far East:—

My dear Dick,—Unfortunately, your letter arrived at one of my strenuous periods, so that I was not able to answer at once as requested, but I now send you some of the details of life in the Far East. I will begin by saying with Mark Twain that the reports of my death have been much exaggerated.

I sailed from 'Frisco in the United States army transport "Sherman," Dec. 1, 1902. I had not looked for a job in that section of the world, but, as it was offered to me with financial considerations which made the Metropolitan Water and Sewerage Board, for which I was then working, look like thirty cents Mex., I did not see my way clear to refuse.

The voyage was, for the most part, uneventful, though rough. We touched only at Guam for a few hours, so that we were on the water continuously for twenty-eight days.

We first struck the Philippine Islands on December 26, at 10.30 P.M., on a rock in the Straits of San Bernadino. We struck pretty hard and were considerably jolted, but no real harm was done except to the feelings of some of the ladies when they recovered sufficiently to remember the costumes in which they had come on deck. Of these the less said, the better. Anyway, they all had life preservers.

We reached Manila without further mishap at about 2.30 P.M. the 28th. Went ashore, and found a hotel—of a sort—with much difficulty.

I received my first detail as Supervisor of the Province of Surigoa, and left for that remote section on January 16, per steamship "Z. Y. de Aldecoa," arriving Surigao January 20.

Some time, when I have a month or so to spare, I will narrate to you just

what were the duties of a provincial supervisor. The office has been discontinued. To put it in few words, he was the provincial goat. To be more precise, he was member of the Provincial Board (the governing body of the province, with the governor and treasurer), which body collected taxes, made appropriations, hired official municipal officers, justices of the peace, etc., member of the Provincial Board of Health, of the Board of Tax Pension, of the Board for the Suppression of the Plague of Locusts, Provincial Engineer and Superintendent of Public Works, janitor of public buildings, guardian of the jail, winder of the town clock, accountable for all public property, purchasing agent, distributor of supplies, member of the Local Civil Service Examining Committee, superintendent of the coal pile, keeper of the pound (commonly known as the Provincial "Fence"), consulting engineer to the municipalities, member of various Boards of Survey, etc., etc. In his spare moments he was expected to acquire all sorts of miscellaneous information, and be ready at a moment's notice to deliver facts, opinions, and statistics on length and navigability of rivers, birth-rate of chickens, manufacture of ardent spirits and textiles, comparative immorality, species of timber, hemp presses, diseases of live stock, value of g, mineral deposits, and to decide questions of town boundaries, ownership of lost, strayed, or stolen cattle, settle the domestic disputes of the office boy, and various other duties. The above is no idle dream, but cold facts, and it had to be done usually in Spanish—a language which I never studied—or in any one of several hundred nations' dialects which I never tried to learn,—couldn't.

Surigao is on the north-east corner of the Island of Mindanao, 9° 50′ N., 125° 30′ E. The province covers an area of 13,000 square miles (about the area of Massachusetts and Connecticut), has thirty odd towns, five miles of road, and a population of 85,000 (about that of the State of Wyoming or of Richmond, Va.), which is divided among forty odd tribes,—Visayans, Manobos, Monteses, Mamannas, Bagobos, and the like. Transportation is mostly by water, and most of the country has never been seen by a white man.

I arrived in the tail of the big cholera epidemic, got all of it that I wanted, and my first job was the stamping out of an epidemic of small-pox. This latter I accomplished by the simple and direct means of girding on my trusty Colt 44 and personally vaccinating the whole population, searching the houses for cases, and shooing those that had it off to quarantine. Every native in that section thinks that I am a doctor, and they used to come to me with all kinds of ills in consequence.

On the 23d of March, 1903, the provincial capital, Surigoa, was entered by some two hundred bolo-men, savages, escaped convicts, and others under Adriano Concipcion, Edwardo de los Santos, Vincente Atillo, and others. They came in at 12.30 P.M., scattered a force of fifty armed constabulary (natives), captured their arms, killed their chief, Captain Clarke, who was eating dinner with me when the attack was made, and tore up things generally. I was unarmed at the time, and they refrained from killing me, because they were not anywhere near my class when it came to a rapid sprint. So much for Tech. athletics. I got my six-shooter, and with three other Americans tried to jump the outfit. They found us with a number of volleys down an open street at some sixty or seventy yards' range, but were unable to hit anything except the atmosphere. We then retired to the "Palace," and barricaded, but somehow we had managed to throw such a bluff that they did not dare to come near us. The defenders were eight in number, two of them women school-teachers; and we were very badly armed. There were several hundred of the "Tulisanes," armed with Springfield carbines, but you remember the lectures we used to get on the military advantages of a bluff. Fortunately, we held the end of the cable, and were relieved from Tactoban the next morning. Troops were rushed in, and the boys in the blue shirts, with the long brown guns with carving-knives in the ends, very promptly put that little insurrection in the blink. Six of the leaders were hanged and some sixty of them are now doing time in Bilibid for their crime. How many went the way of a man who stops a bullet will never be known, but there were a good-sized mob, I imagine.

After the dust had cleared somewhat, I took a trip down the east coast. Was received by a brass band at each town that I entered.

In August, 1903, I was transferred to the Province of Cavite. Here I had a lot of road construction on hand, also nothing but rice to pay for my labor. Rice is a very poor kind of currency, and I had a time, but succeeded in getting a good stretch of roads into moderately passable condition.

Cavite was overrun with various kinds of bandits at this time, but they did not bother me for some reason, although I went to a good many places that I should have kept out of, with no company other than my 44 Colt and my little horse.

In the following May I was transferred to the Bureau of Engineering, and sent to the Island of Negros to make a survey for some seventy miles of proposed road. This took about five months, and was strenuous labor. Most of it was on the slopes of the Volcano Canlaon (8,000 feet), among a maze of barracades and canyons, and was made in the rainy season. One

night we filled a 10" rain-gauge, so you may imagine that it was coming down some.

In December we returned to Manila, and were sent off again to Cebu. There I surveyed several miles for roads across the island. One of these was building when I left.

In March, 1905, I was detailed to the Cebu Harbor Works, and was employed in that job for the remainder of my stay. Finished up the preliminary surveys, soundings, borings, cement testing, etc., made plans, and chased inspectors and contractors. I was invited to stay and finish this work, but thought that three years straight were about all of the tropics that were coming to me, and so chucked the job.

I left Manila January 26 for Hong Kong, where I took James J. Hills's "Dakota," and came back via Shanghai, Nagasaki, Kobi, Kyoto, Tokio, Yokohama, and Seattle, reaching New York March 11, 1906.

I found the Islands interesting and healthful, enjoyed my stay there, and do not want to go back. The Little Old United States is good enough for me, thank you. Nevertheless, it is a great country, and will amount to a good deal when they stop playing politics out there. The country is all to the good, but the population is about the limit. If one of the true Filipinos was up against a situation where he had to do a whole man's work, he would just incontinently die off, and would not hesitate in the process.

At present I am working for the Board of Water Supply in this place, and expect to be thus employed until some one wants me elsewhere more than they do here.

For the rest I am still sane, solvent, sober, and single, and glad of it.

Ever yours, R. SUTER.

1901.

R. H. STEARNS, *Sec.*, 15 Beacon Street, Boston.

Now and then in the course of his work a sort of lonesome feeling comes creeping over a class secretary, and then again he is cheered by the chance meeting of some classmate who is visiting in Boston from a home elsewhere. It is thus the secretary has recently encountered L. P. Wood, W. G. Wildes, and Sumner Hazelwood, all of Course I. and all at work in the "Empire State." Wood is now assistant designing engineer for the hustling New York Board of

Water Supply. Wildes is assistant engineer on the Barge Canal, and Hazelwood is with Purdy & Henderson, now engaged on the design of steel work for the Pennsylvania Railroad Station in New York. Happening into the auto show, the secretary ran into E. B. Belcher (II.). Belcher showed conclusively that the Berkshire automobile, which he builds, was the best all-round car on the road; and far be it from the secretary to argue this point. And what Belcher does not know about autos E. S. Foljambe (II.) will tell you. As managing editor of the *Horseless Age*, Foljambe knows every detail of the automobile and automobiling. Again, threading his way among the human streams that flow through Jordan-Marsh's dry-goods store, the secretary came upon A. W. Rowe, single, alone, and happy. Rowe has chosen the teacher's life, and is looking forward to another trip abroad during the coming season.—Archibald L. Klieves (IV.) spent a couple of months abroad last fall, and is now established in the firm of Franzlein & Klieves, Wheeling, W. Va. They are architects for a seven-story hotel and a nine-story office building, among other structures.—R. S. Loring (I.) and F. D. Chase (I.) are both trying their hands at architecture, Loring out in Lewiston, Ida., and Chase on the Illinois Central Railroad.—A. W. Peters (I.) is assistant engineer for the Consolidated Water Company of Utica, N.Y., and reports himself busy and happy.—R. W. Bailey (XIII.) is draughtsman at the Brooklyn Navy Yard, and is enjoying life in a home overlooking New York Bay. His one-year-old boy has been nicknamed "The Little Corporal," and certainly no child has a better claim to that title. We shall hope to see him at M. I. T. before a score of years.—C. F. Willard (II.) is instructor in marine engineering at M. I. T., but that is not all. He has been studying law at the Boston University Law School, and has lately been admitted to the bar. Of course, while we were yet Freshmen, some of our class were admitted to the bar through that Gothic portal across Boylston Street, but Willard deals in a different kind of goods, and is the first of our class to undertake this dual rôle.—Charles F. F. Campbell (IX.) is now superintendent of the Industrial Department of the Massachusetts Commission for the Blind, the work he commenced having been taken over by the State.

He is running a miniature factory for the blind during the day, lecturing on the blind in the evening, and edits a quarterly magazine for the blind on the side. In other words, he is fully Americanized.—F. H. Bass (I.) is now engineer of the State Board of Health of Minnesota, in addition to his assistant professorship in the University of Minnesota. —G. C. Peterson was married on Jan. 10, 1907, to Miss Ada Katharine Wood, of Lexington, Mass.—Edward Seaver, Jr. (II.), is engaged to Miss Grace A. Whitman, of West Newton, Mass.—Perkins Boynton, G. A. Hall, and John Alden Trott are also engaged.—The secretary hopes to have some class statistics for the next issue of the REVIEW.

1902.

F. H. HUNTER, *Sec.*, Johnson City, Tenn.

Circulars containing reports and general information were mailed March 12 to the members of the class, and the secretary is pleased to report that the responses from a large number of the fellows have been most hearty, and we hope the others will swing into line right away. Plans are being worked out for the celebration of our fifth reunion next June, and circulars giving full information will be mailed to the class in due time. The following notes will be of interest: Hervey is now located with the Gould Storage Battery Company, Rookery Building, Chicago.—Hammond's address is 106 Morris Street, Yonkers, N.Y.—The following is clipped from the *Engineering News* of March 27: "Messrs. Herbert L. Sherman and Robert S. Edwards have formed a partnership under the firm name of Sherman & Edwards, chemists and chemical engineers, 12 Pearl Street, Boston, Mass. They will make a specialty of investigating cement and lime properties and designing and improving plants manufacturing these materials." The firm of Sherman & Edwards is doubtless the first engineering firm composed entirely of '02 men. —C. L. Wright is located at the fuel testing plant of the United States Geological Survey, St. Louis.—Paraschos has been located in Newark, N.J., where he is works' engineer for the Atha Steel Casting

Company. Since graduation Paraschos has made two trips to his home in Athens, one in 1902 and one in 1906. In 1903 and 1904 he was with the Louisville & Nashville Railroad. Started as rodman, later being promoted to assistant engineer of the Baker Hill Division, and while there had supervision of the Ridge Top Tunnel, 4,600 feet long. In 1905 became assistant engineer on the Pittsburg filtration plant, which position he held till May, 1906, when he went abroad, and soon after his return located at his present position in Newark. The secretary had not expected to run across many '02 men in Eastern Tennessee, but was delighted to have Paraschos drop in here a few weeks ago.—Goldenberg has an interesting communication in the March 16 issue of the *Engineering Record* regarding recent failures in reinforced concrete. Goldenberg lately visited the Pacific coast, investigating a concrete failure at the Bixby Hotel at Long Beach, Cal., and also made a study of structural conditions in San Francisco and other places.—Archie Gardner is now at Summerville, S.C.—Egan's address is Sylacauga, Ala. He writes that he expects to remove about May 1 to Amboy, Ill.—Wadleigh is on the United States steamship "Louisiana," and at last writing is at Fortress Monroe. He has recently been promoted to the rank of captain, United States Marine Corps.—'02 was represented at the annual dinner of the North-western Alumni Association at Chicago, March 2, by Foote, Lockett, L. E. Williams, and Pendergast, who made proper mention of the fact that '02 was there.—Lockett left Adams & Schwab last October, and is now mechanical engineer for the Electrical Installations Company, Monadnock Building, Chicago, Ill. His work is largely in connection with the electric railroads and transmission plants.—Williams is assistant engineer with the Great Lakes Dredge and Dock Company, Chamber of Commerce Building, Chicago. He is added to our list of "proud and happy" fathers. His first daughter, Harriet I., was born Nov. 6, 1905, and a second daughter, Gertrude, was reported on February 26 of this year.—Ballard is also among the '02 men who have scored twice. His son, William Whitney, was born April 4, 1906. —F. B. Montgomery reports a daughter, Eleanor, born Oct. 11, 1906. His home address is 52 Chestnut Street, Cambridge, Mass.

—C. A. Sawyer, Jr., is back in Boston with the Andrew D. Fuller Company, and is living at Waban, Mass.—A. A. Jackson is chemist for the Zephon Chemical Compound Company of Chicago.—Starr is another member of the class whose family history has hitherto been concealed from the secretary. We find that he was married on June 10, 1905, to Miss Alice F. Sherman. He is located with the Barstow Stove Company of Providence, R.I.—Miss Hill left the office of Percival Lowell, the astronomer, last fall. Her present address is Bourne, Mass.—R. Van B. Blaisdell has been located. He has been ranching at Junction, Wyo., but expects to make Coeymans, N.Y., his permanent address in the near future.—Arthur F. Butler is with the Lowell Electric Light Company, 28 Bridge Street, Lowell, Mass.—Ned Baker claims the title of "Class Hobo," having visited thirty-nine different States since 1902. If any member of the class can better this record, he is requested to report to the secretary at once and get the "bun," which will otherwise be awarded to Ned. Your secretary has also to report a move, being now located as construction manager of the Unaka Company, Johnson City, Tenn., and is working with W. P. R. Pember, who is architect and landscape engineer of the same company, as well as for the South & Western Railroad. Together they expect to work out some interesting problems in street and sewer layout and building construction. Pember, before leaving Buffalo, submitted plans in competition for the New York State Library at Albany, in association with Martin C. Miller, of Buffalo. They were selected by the judges as one of the ten firms to enter the final competition, which closes April 1. They received a prize of $500, and are paid $1,000 for making final plans. As there were over sixty architects entered in the original competition, some of them among the best known in the country, the win of Messrs. Pember and Miller is particularly creditable.—C. A. Smith is now located at Ontonagon, Mich., with the Nonesuch Mine of the Calumet & Hecla Company.—F. J. Eager is now in Boston. Address 15 Beacon Street.—F. B. Galaher is with Stone & Webster, 84 State Street, Boston.—D. M. Belcher is on the Sewage Purification Works, Washington, Pa.—Manley is

at the Stony Wold Sanitarium, Lake Kushaqua, N.Y. He has overcome the danger of tuberculosis, which sent him to the Adirondacks, and expects to leave in a short time. His permanent address is 116 Mount Vernon Street, West Roxbury, Mass.—Kern has returned to this country from Manila, and is now at 2004 F Street, N.W., Washington, D.C.—A. H. Sawyer is with the Keweenaw Copper Company, Delaware Mine, Mich.—Fitch expects to leave Dayton, Ohio, in April. His permanent address is 48 Union Street, Rockville, Conn. The secretary has just learned of Fitch's marriage on Oct. 17, 1905, to Miss Nellie M. Keister, of Clinton, Ia.—Hooker is located with N. W. Harris & Co., of Boston.—Wright was married February 9 to Miss Helen Lenore Coffin, of Newcastle, Ind. This summer he will be at the Jamestown Exposition for the Geological Survey.—Weeks is with Norton, Megaw & Co., Rio de Janeiro, Brazil.—Walter O. Teague was married February 12 to Miss Jane Teresa Neilan, of Hamilton, Ohio. They are at home at Columbia Flats, LaFayette, Ind.—Before this reaches the class, Kellogg will have joined our army of Benedicks. His marriage is announced for April 6 to Miss Clara Howard Davis.—William Warren Garrett (III.) died at San Antonio, Tex., Jan. 15, 1907.—"We chronicle with regret the death of Francis J. Field, which took place Jan. 27, 1907."

The secretary has received some startling facts in response to the requests on the circulars which he recently sent out to the class asking for "remarks and general news." Capen reports from Omaha that Governor Sheldon has signed the two-cent rate bill, while Greeley reports that government ownership of public utilities is certainly coming. These matters are of vital importance to the well-being of the class.—Chicago, however, takes the cake as usual, for Pendergast reports that his wife's name will be Mrs. R. B. Pendergast, and at his request we are holding this startling bit of information in the strictest confidence.

1903.

WALTER H. ADAMS, *Sec.*, Polytechnic Institute, Brooklyn, N.Y.

In response to the letters and bills sent out the first of the year about seventy replies have been received. The secretary is now busy with a scheme of reorganization which may be sent out before this number of the REVIEW. An informal dinner was held in Boston on February 9. M. H. Clark, Fales, Howard, Newman, Nutter, Olmstead, and Swett were present. The reorganization of the class was discussed, but no action was taken.—Only a few bachelors have had the courage to try double harness during the past year: Harlow was married to Miss Ethel May Harlow on Oct. 18, 1906. —Loughlin to Miss Grace E. French on Aug. 22, 1906.—Millard to Miss Helen Mae Brown on June 18, 1906.—Sumner to Miss Lucy Eleanor Allen on Nov. 12, 1906.—Underwood to Miss Cleve Elbertine Lozier on Sept. 25, 1906.—Harris wrote that he was to be married on March 2 to Miss J. Winifred Lombard, of Kansas City, Mo., so is now probably on his honeymoon.—The class babies have increased by one this last year. Master Edward Harding Sibbett joined them on Aug. 1, 1906.—F. G. Cox writes from London that he is engaged in erecting one hundred and forty large elevators on the Underground Electric Railway System, of London, but expects to return to New York in August. He also says, "England is pretty nice, but it isn't U.S.A."—Place writes from Oaxaca, Mexico: "Have established the only American engineering office existing in Southern Mexico, and am branching out rapidly. Glad to give any information about this rich and booming country." He is a member of the firm of Place & Elton, consulting civil and mining engineers, at the above address.—Aldrich has sold his business to the Mianus Motor Works, and is now assistant manager of their Boston branch at 7 Commercial Wharf, Boston.—The following changes of address and occupation have been received: Ancona, 176 Spencer Street, Rochester, N.Y., is chief draughtsman for the Eastman Kodak Company.—C. L. Bates, Kenora, Ont., care W. A. James, Div. Eng., is resident engineer in the construction department,

C. P. R.R.—Bradshaw is at 363 Grand Avenue, Brooklyn, N.Y. —Buhler is in Kingston, Mass.—G. H. Clark, 20 Rockland Avenue, Malden, Mass., is overseer of grinding department of the Boston Rubber Shoe Company.—Foster, Astoria, L.I., is assistant superintendent with the Astoria Light, Heat, and Power Company.—G. H. Gleason, 606 Connecticut Mutual Building, Hartford, Conn., is in the brokerage business.—Harlow, 618 Cator Avenue, Baltimore, Md., is with M. L. B. Stilwell, consulting engineer.—Kearney, New Haven, Conn., care N. Y., N. H. & H. R.R., is an electrical engineer with that road.—Lyon, 3543 Indiana Avenue, Chicago, Ill., is a sales engineer with the Otto Gas Engine Works.

1904.

CURRIER LANG, *Sec.*, Michigan Central Depot, Detroit, Mich.

Since the last issue of the REVIEW the following information has been received through letters from members of the class.—E. F. Allbright is still with the Southern Railway at Washington, D.C.—W. S. Anthony writes that he saw Joe Crowell, '04, at the Auto Show in New York. Crowell is in the auto business in West Newton. He also says that Hamilton from Montana, who failed to get a degree after five years, is back after it again. Langley is still in business with his father in Waterbury, Conn.—P. M. Arnold is with the United States Metals Refining Company of Chrome, N.Y.—J. F. Card states in a letter that he is in Butte, Mont., and has been there since Thanksgiving. He was working then in the 1,400 feet level of the Pennsylvania Mine of the Boston and Montana Company, but was expecting to go on the engineering corps in a couple of weeks. —C. F. Barrett is an assistant engineer with the Electric Vehicle Company of Hartford, Conn., and has been with them since graduating, having gone through all departments of the factory. The Technology Club of Hartford is doing well, but hasn't as many '04 men as it had when it was organized two years ago.—A. M. Holcombe is in the patent department of the Pope factory at Hartford, and is conducting the Y. M. C. A. school of auto construction which

Barrett ran last year. Barrett says that, so far as he knows, he and Holcombe are the only '04 men in the auto business, but Joe Crowell and Broad are in the same ranks. Barrett continues:—

Let me say right here that there is no line of work more intensely interesting and pleasant than the automobile business, as in the large amount of testing and experimenting it gives one a fine opportunity to ride around and see the country. I figure that I have made a total mileage in automobiles of nearly 40,000 miles, covering nearly all of New England, New York, New Jersey, and as far north as Montreal and Quebec. It's great sport.

—Lewellyn Bixby writes:—

I have heard no news of any of the class for a couple of years, so am afraid I can't help you out much in that line. So far as I am concerned, I have done no engineering since graduation. I read law for a few months, and, my father's estate then having been settled up, I moved here to Long Beach (Cal.) to look after the property interests of my sisters and myself, which centre here. These interests lie mostly along the line of farming and cattle raising, with some real estate dealing on the side. You will, perhaps, remember that I was married some time before entering Tech. Since coming to this neck of the woods, I have had a daughter born, Aug. 2, 1905.

—In a letter from Bernard Blum he says:—

March 1 I left Chicago, and set sail for St. Paul, bound for the Northern Pacific Ry., whence I had received a most favorable offer as assistant engineer in charge of construction of a large country yard in Montana. I came on immediately to Laurel, a small village 15 miles west of Billings. I have a party here, and we are making a survey of the location three miles long and one-quarter of a mile wide. It will consist of a very large gravity yard, with round-houses, shops, etc. I expect to be here about a year and a half. This is the first change I have made since I left Boston.

—Charles Francis Underhill, Course X., of Dorchester, has been appointed chief chemist for the California and Hawaiian Sugar Refining Company.

1905.

ROBERT H. W. LORD, *Sec.*, 248 Tremont Street, Newton, Mass.

The annual 1905 dinner was held on March 1 at the Hotel Bellevue. There were thirty-six present, and of these a good many were men away from Boston or who had not been with us for three or four years, including Ellis Wood, our baseball captain, Louis Booth from New York, Robbins, recently returned from Korea, Anderson, Nelson, Young, and many others whom we have not seen much of. The Bellevue people did well by us, and in that respect it was the most successful of our dinners. Letters were read from men from far off, and a "straw vote" showed that it was more expensive to procure an '05 man this year. The average of the men showed a salary of $94.70 a month, minimum $50 a month and maximum $165, two at $150 and two at $125, and six below $70. We had a piano that sounded like the Freshman band, but Pirie can make almost anything go.

The secretary very unexpectedly started on a trip to Mexico on February 20, thus making it impossible to attend the class dinner. I only had a week's notice, so that it was almost impossible to get word to the fellows in Mexico to see if they could not meet somewhere *en route*, as mails there are slow and telegrams are not bothered to be delivered. We went through Eagle Pass, and stopped at Torreon first. Then direct to Guanajuato, the mines at that place being the object of our trip. Nothing can describe that quaint old city, which in 1800 was the second largest in the western hemisphere, with its fine old haciendas (the last relic of the patio process), its narrow streets, fine buildings and parks, mixed in with mud houses and pigs, and, queerest of all, the Mexican Peon walking around with his bright-colored serape wound around him, even on the hottest day. The mines are in the mountains, which form a solid wall around the city, and here are the famous old Valenciana and Raya mines, and several hundred others, large and small. Years ago operations were suspended in the Valenciana and Raya mines, as, after the shaft was sunk to the 1,500 feet level, water gathered in the mines too fast for them to be profitably worked.

But now, with modern machinery from the States, those mines are recommencing operations, and probably will again turn out their millions. We were particularly interested in the Guanajuato Development Company's properties, and their latest, the Pengnico, shows large amounts of gold and silver bearing ore. Their Perigrina mine and mill of 120 stamps were in full operation, the mill taking care of the new ore and working up the old dumps which the cyanide process now makes profitable. Everything is at present carried on mule teams and burros, but soon the Development Company is to build a railroad through the mountains, connecting the various mines and mills. Six years ago there were six Yankees there. To-day there are five hundred, principally connected with the mines. In all those I was not able to find an Institute man. Leaving Guanajuato, we went to Iripuato, Guadalahara, Mexico City, Cuernavaca, Orisaba, and then north through Monterey. At San Antonio I looked up W. E. Simpson. He was rather surprised to see me, and the office of J. Flood Walker was closed immediately. He was much interested in class news and general Institute affairs. He seems to be getting on well, and had just finished a ninety-foot wooden span over a skating rink. He is the only engineer in the city, and, considering its rapid growth, should find plenty of engineering work. At Galveston we saw a rather novel engineering feat,—that of raising the whole city six feet. Sand mixed with water from dredges in the canal is pumped through pipes over the land, and, after the sand has settled out, the water runs off. The great sea wall is also another big piece of work. Stone & Webster operate the street railway there, and keep it going despite the filling in.

I am now in a very responsible position (filing letters and snagging blue prints) in the electrical department of the New York Central. New York is a great town, if you say it fast. The bridge jam has the Technique rush lashed to the mast. I occasionally see a Tech man down here, and very rarely a 1905 man. I saw Ros Davis the other day. It seems to me he is getting fat. BUSH.

Bush has consented to take up the task of getting the New York

'05 bunch together. Here's hoping the fellows buck up and show some life.

I am glad you published the date of the dinner of the Boston Club of '05, for many of the fellows hope to get back to Beantown some time, and the prospect of meeting some of the crowd would be an inducement to come on that date. Did you hear of the reunion and dinner of the '05 fellows in this part of Mexico, held in Parral on Christmas Day? Charlie Johnson came up from Jiminez, and Bill Motter in from Santa Barbara, while the undersigned saddled his little horse and came in from sixty-five miles beyond the end of the railway. We had a jolly good time, and were sorry the vacation allotted to each was not longer. Burton is now in Santa Barbara, so there are four of the '05 Course III. crowd within a day's travel of each other. All of the '05 men in this country seem to be doing well.

ROY H. ALLEN.

I am right on hand with a claim on the title of class baby for my son James M. Barnes, born Dec. 31, 1906. If any one claims priority over him, I shall still be at the head of the list, I am sure, by reason of his sister, Milla E. Barnes, born also Dec. 31, 1906. So, if I haven't the class baby, I have at any rate the class twins, and claim consideration for them.

The West Shore (Utica to Syracuse) is approaching electrification at a good clip, and there is plenty to be done in connection with it. Draughting, computation, estimates, inspections, and test afford a pretty good variety, and I am getting a taste of all of them, so have no kicks coming with life or the world. Besides, I find that a pair of twins in the house don't leave much time for consideration of outside topics. JAMES P. BARNES.

To date Jim has the only boy that we have heard of, and fulfils the requirements, having been married the 3d of January, 1906.

I am in the engineering department of the Trenton Iron Company, draughting, but like the job and find the work instructive. This company builds about 70 per cent. of all the wire rope aërial tramways put up in this hemisphere. Customers are mining and milling coal and fertilizer cranes, etc. One line in Hayti carries bananas. STUART W. BENSON.

Benson's address is 48 Chestnut Avenue, Trenton, N.J.—The engagement of Carl E. Danforth was announced last fall to Miss

Carrie M. Goodall, of Bangor. Danforth has given up mining and gone into business in Bangor.—At the Greater Louisville Exposition Ned Jewett is engineer in charge of loading floors.—"Beverly's Baby City Engineer." Under this title the Boston Sunday *Herald* made a "feature" article of Harry Whitney's latest success. For over two years Whitney has been the engineer of the sewer department of Beverly, and has planned most of the sewers built during that time. On February 1 he was appointed city engineer; and, to quote the Beverly *Times*, "the new city engineer is a bright, aggressive young man, has ideas of his own, and has every opportunity to make good in a berth which is regarded as one of the most lucrative in the city."—Jim Lambie left the Lackawanna Steel Company in the middle of April last, and formed with a cousin the contracting firm of C. S. Lambie & Co., securing a large contract to line with concrete a tunnel for the Wabash Railroad. This partnership has dissolved, and Jim is now assistant superintendent of the Charleroi plant of the Pittsburg Plate Glass Company. He calls it a "dandy job," and confesses that they have "raised the ante."—On Oct. 18, 1906, C. A. Anderson was married to Miss Mabel C. Ray.—Chester Allen is now instrument man on the C., C., C. & St. L. Ry., with address at 1216 Main Street, Mt. Carmel, Ill.—S. H. Ayers is now with A. D. Little, 93 Broad Street, Boston, taking charge of the bacteriological laboratory which Mr. Little has just started.—W. S. Ball was married to Alice H. Paul on June 16, 1906.—Edward A. Barrier is instructor in analytical chemistry at the University of Cincinnati.—William H. Beers, Jr., is chemist and bacteriologist at the filter plant, Columbia, S.C.—Frederick G. Bennett is assistant engineer, Board of Water Supply, City of New York, address Babylon, L.I., N.Y.—Eugene Burton, address Minas Tecolotes y Anexas, Santa Barbara, Chihuahua, Mex., on engineering staff.—S. A. Caine, address 369 Harvard Street, Brookline, assistant engineer for Submarine Signal Company.—On April 18, 1906, W. D. Clarke was married to Miss Mary Bailey. Clarke is assistant engineer for the Western Pacific Railway Company.—W. P. Delano, Jr., is an architectural draughtsman at 121 Newbury Street, Boston, and he is living at 18 Channing Street, Wor-

cester.—John Douglas lives at 301 Huestis Street, Ithaca, N.Y., and is an instructor at Cornell.—Bob Farrington is now at the Harvard Law School.—Joseph C. Field is engineer for the Western Electric Company, address 321 West 22d Street, New York City. —T. H. Files was married on April 30, 1906, to Miss Alice A. Newlin.—A. Fisher, Jr., is chemical engineer at 164 Front Street, New York, home address East Side Branch, Y. M. C. A., 153 East 86th Street.—L. V. Fuller gives his occupation as shoe manufacturer, address 26 Vine Court, West Lynn, Mass.—A. P. Gerry, 149 West 126th Street, New York City.—Carl Graesser is now plant superintendent, factory L, International Silver Company, at Wallingford, Conn.—J. T. Glidden is assistant editor of *Engineering and Mining Journal*, 505 Pearl Street, New York, N.Y.—Selskar Gunn is bacteriologist of Iowa State Board of Health and lecturer on hygiene in the State University at Iowa City. He expects to be in Boston about July 1, *en route* to Europe.—R. M. Harding is now with Stone & Webster, address 42 Youle Street, Melrose.—Percy G. Hill is at New Haven, Conn., with S. N. E. T. C. —E. L. Hill was married on Dec. 20, 1906, to Miss Gladys B. Patterson, Lasell Seminary, 1904. He is now assistant engineer for the American Steel and Wire Company, Worcester, Mass.—In September Arthur H. Howland announced his engagement to Miss A. R. Smith. He is doing architectural draughting, address 353 Carlton Avenue, Brooklyn, N.Y.—S. T. Hyde's address is Box 705, Ensley, Ala., engaged in draughting.—H. L. Jackson is instructor at M. I. T.—A son, George Stuart Jason, was born to George Jason, Jr., on Dec. 25, 1906.—S. B. Joslin is engaged in heating and ventilating engineering around Boston.—Bill Keen has changed his address to 406 Locust Street, Philadelphia.—Hurb Kenway writes that George Jones comes over quite often with his fiddle, and he and Mrs. Kenway "tear things up to beat the band."—E. F. Kriegsman is now assistant engineer on U.S. R. S., address River Portal, Col.—Eugene Lombard was married on Nov. 26, 1906, to Miss Margaret G. Ewing, and is now an inspector at Fair Oaks, Pa.—C. A. Lord has now changed his address to 207 Industrial Trust Building, Providence, R.I.—T. P. Moorehead's address is now

Richmond and Harriet Streets, Cincinnati.—D. H. Nicholson was married on Nov. 7, 1906, to Miss Carrie M. Cox, address 20 Gay Head Street, Roxbury.—H. W. Olmsted is assistant engineer, New York Board of Water Supply, located at Valhalla, N.Y.—A. G. Prescott is with the Whitlock Coil Pipe Company, 11 Buckingham Street, Hartford, Conn.—Charles R. Prichard was married on Oct. 22, 1906, to Miss Marion C. Mudge.—P. J. Ralph is now draughtsman for New York Shipbuilding Company, 434 Penn Street, Camden, N.J.—Miss Grace Raymond was married to Mr. George F. Leslie on Jan. 3, 1906, and lives at 1050½ Washington Street, North Abington, Mass.—W. S. Richmond, 33 Campau Building, Detroit.

Wish I could get down for the dinner; but who would sweep out the corners of the office while I am gone? Whitcomb, '05, is up here, and we have formed a 1905 Club of Albion, N.Y. We have your Boston Club beaten, for we have a dinner every day, and it is seldom that the whole membership does not turn out. Here I quit this writing, not because I have run out of things just burning to be written, but because I've a boss. BILL GREEN.

Bill is doing odd jobs around J. G. White & Co., Electric R.R. contractors, and has recently become engaged to Miss Ruth Wilder, Vassar, '07, of Lowell. His address is 157 Bleecker Street, Gloversville, N.Y.—Louis E. Robbe, inspector, East River Tunnels, 345 East 33d Street, New York City.—E. G. Schmeisser, assistant engineer, Penn., N.Y. & L.I. R.R., 10 West 128th Street, New York, N.Y.—R. W. Seyms, 4217 Fifth Avenue, Pittsburg, Pa.—Chester R. Shaw, with Massachusetts Electric Company, 5 Chester Avenue, Brockton, Mass.—F. W. Simonds was married on Sept. 17, 1906, to Miss Ethel R. Paul. He is now bridge inspector, 606 Central Avenue, Albany, N.Y.—S. A. Smith, with Jamestown Cotton Mill, 500 East 6th Street, Jamestown, N.Y.—Sid Strickland reports a girl, Jane Strickland, born last summer.—A. E. Tadgell is now at 222 Boylston Street with the Bay State Trust Company.—R. E. Tarbett is bacteriologist, Knoxville Water Company, Knoxville, Tenn.—A. O. True's address is 1503 Farmers' Bank Building, Pittsburg.—LeBaron Turner, with United States Wind Engine and Pump

Company, Batavia, Ill.—Waldso Turner, general superintendent, Iron City Engineering Company, 1173 Frick Building, Annex, Pittsburg, Pa.—H. H. West, 23 Journal Building, Boston, fire-proof construction.—Horatio Whiting, assistant examiner, Patent Office, 21 Sixth Street, N.E., Washington, D.C.—A. L. Whitmarsh, with Holly Sugar Company, Holly, Col.—R. E. Wise, transitman, Charles River Basin Commission.—Ellis G. Wood reports the birth of a daughter, Margaret True Wood, on June 4, 1906.—B. A. Yoder was married on Oct. 24, 1906, to Miss Mabel Coolidge.—Charlie Adams is with the Union Water Power Company, Lewiston, Me.—R. O. Marsh, after a period of study in Switzerland, has been at work on railroad construction in various parts of the Far East, and has recently set out for similar work in the interior of Bolivar. Dick has a nice mustache.—A. J. Amberg is purchasing agent for the Amberg File and Index Company, 438–452 Fulton Street, Chicago.—The '05 Quakers had a dinner at Hotel Windsor at 7.30 P.M., Jan. 3, 1907. The '06 men are now enrolled with the '05 Quakers, so that the name of the club is now the Tech Quakers. All men in Philadelphia look up H. L. Walker, 1730 Tioga Street.—John A. Meggison is now at 71 Hancock Street, Boston.—W. M. McBriar, 1710 Green Street, Philadelphia.—R. D. Emerson was married to Miss Minnie Viola Thayer on Tuesday evening, October 30, in St. John's Episcopal Church, Worcester.—G. D. Marcy is assistant to the chief engineer of the Lamson Consolidated Store Service Company, 161 Devonshire Street, Boston.—O. C. Merrill was married to Miss Elizabeth B. Watson on Wednesday, October 17, at Winchester, Mass. At home at Berkeley, Cal.—P. E. Hinckley is still in the paper-making business at Cumberland Mills, Me.—From Lane Schofield, W. Va., we have the following:—

> Everything here is booming and about the same as usual. Guess that I will stay here for a while yet. Like the work very much, but the country is pretty hard. Get out in civilization once in a while.

—J. R. Damon has left the Chicago Telephone, and is again in Boston.—Lyon and Crane of VI. have formed a firm with a Wiscon-

sin man for doing electrical testing in connection with their Institute work. Lyon is also doing other outside work.—H. A. Wentworth is now doing development work in mining machinery with C. H. Huff, 60 India Street, Boston.—Bruce Hill is still with his father in the lumber business in Pittsburg. He has just recovered from an operation for appendicitis.—Jack Holiday is foundry expert for the Atlas Engine Works in Indianapolis.—Charlie Dean is with the Buffalo Forge Company, in charge of their Pittsburg office, where he is reported as "making things go."—Ros Davis's nearest approach to naval architecture is still a hole under the East River, where he is "sand-hogging" in the East River Tunnel.—Norman Lombard is chief clerk in the Corn Belt Bank, and was a delegate to the Republican County Convention.—E. T. Steel is in Porto Rico for Stone & Webster of Boston.—H. R. Robbins is manager of the newly organized New Hampshire Concentrated Milk Company, which is about to start under a new patent process from which the management hopes will be made radical changes in the milk business of large cities.—Fred A. Pirie (II.) is doing contracting and building work in the district north of Boston.—H. S. Walker, Jr., writes that he has been in a lumber camp in Colorado, on a railroad locating party in Wyoming, and is now studying in the civil engineering department of the University of Colorado.—Alden Merrill is assistant chemist for the Coe Brass Works, address 74 Litchfield Street, Torrington, Conn. He complains bitterly because Torrington "isn't near anything," and he is sure that it is criminal to make a man get to work at 7 A.M.—C. R. Adams is now with the Union Water Power Company, Lewiston, Me., doing hydraulic engineering work. He has been down in North Carolina for J. G. White & Co. He found B. L. Johnson working in the Carolina Coast region on the United States Geological Survey.—Eliot Lum is with the Griffin Wheel Company, Chicago.—Galt F. Parsons is with the Terre Haute Traction and Lighting Company, Terre Haute, Ind.—W. N. Munroe is with the Dallas Electric Light Company, Dallas, Tex.—Frank M. Carhart, civil engineer, Boise City, Ida.—Arthur C. Long is now with the American Chlorine Company, 15 Exchange Street, Boston, Mass.—The expenses of the class from graduation

up to March 24, 1907, have been $119.59. Receipts have been $295.84. This leaves a balance of $176.25, which is on deposit at the Beacon Trust Company, Boston.—We have just received a letter from Bill Motter, asking that all Tech men who are in Mexico send him their names and addresses, so that they can get together on occasions similar to the Christmas Day in Parral.

1906.

THOMAS L. HINCKLEY, *Sec.*, 745 Osceola Avenue, St. Paul, Minn.
ANGELO T. HEYWOOD, *Res. Sec.*, Mass. Inst. of Technology, Boston.

Plans are under way for our first annual class reunion, to be held Commencement Day. A committee will arrange for headquarters to be open Tuesday, June 4, for registration and reunion, and a simple spread will be provided during the day. The first annual class dinner will be held in the evening, after which the class will go in a body to participate with the other classes in the "Tech Night at the Pops." In May a letter will be sent out to the class giving full details, reply card, etc. If early application is made by members, balcony seats for the ladies can be reserved in one block.

In this May letter the question of what disposition shall be made of our fund will be put to the class. Two suggestions are:—

(1) A permanent gift to a scholarship fund, or

(2) The establishment of a permanent class fund to be in charge of and conserved by a fund committee, consisting of three members, one elected each year to serve three years.

In the May letter a definite form of constitution will be submitted for the consideration of the class.

A 1906 man, in response to the wish expressed in our last issue, writes as follows:—

I am not quite sure as to what is meant by "alumni career," but I agree with you that the fixing of responsibilities is important. How does this suggestion sound: Let us have one secretary, a resident of Boston or vicinity, near enough to keep in touch with the Institute, and a number, say three, of corresponding secretaries, chosen on account of their location.

The secretary shall be elected every two years, but the corresponding secretaries shall be changed only at their request or when they change their residence. In spite of these days of space-annihilation I think there is a good deal in the "local color" idea, and, as we need a central authority to do the business of the class, and need also the advantage of the opinions and ideas of those living at a distance, what is the matter with this suggestion?

We would say that it would be a good plan to take this up at the time of the reunion in June.

From another member were received the following suggestions as to what might be included in the constitution, namely:—

Some Objects of the Class Organization

Its object shall be:—

1. To promote the welfare of the Massachusetts Institute of Technology.

2. To promote the common association of all the members of the class.

3. To gather data from its members regarding results obtained by, and progress of, its members, with special respect to the preparation which they have received at the Institute, such data to be collated and to be presented to an Alumni Association Committee on the School, for the purpose of better informing the Faculty and instructing staff of the actual results which have been obtained from the training received by the members of the class of 1906 at the Institute.

Grouping of Membership

The membership of the class could be made up of geographical groups of members, as follows:—

1. Central, or Boston, Branch, members residing in and about Boston.
2. New York City Branch, members residing in and about New York.
3. Philadelphia Branch, members residing in and about Philadelphia.
4. Pittsburg Branch, members residing in and about Pittsburg.
5. Panama Branch, etc.

These and other branches could be formed and added to the class roll as fast as they organized themselves.

This Central Branch might constitute a body whose duty it should be (1) to endeavor by all possible laudable means to keep the other (distant) members of the class informed about the progress of things at the Institute and among the class in general; (2) to have charge of the class dinners and

of all arrangements properly pertaining to local work; (3) to hold regular monthly dinners at (say) the Technology Club; (4) to exert every effort to engage every local member in some small share of the work of the whole class; (5) to assist the secretaries in editing the class notes for THE TECHNOLOGY REVIEW or any other publication. The Central Branch might start a custom of members meeting down town at convenient noon lunching places.

The monthly dinners of the Technology Club might be carried on with the exercise of good care to have a definite program for each meeting. Programs might include (1) readings and talks by men who from their work in the world are acquainted with what is needed in young men who are just entering professions from college and technical schools; (2) consideration of class work and interests; (3) further items which could be suggested.

It could be the work of the other branches to hold regular meetings at stated times, in convenient centres, and devise ways and means whereby they may acquire and intelligently consider information on matters concerning the progress of the work of the Institute.

A third member suggests that the class be organized, having officers as follows: (1) a small advisory council of (say) three members, all resident of Boston or vicinity; (2) a secretary, who resides in or near Boston; and (3) the secretary or any other duly elected officer of each of the various branches of the class which had organized. Members of the advisory council would serve three years, and one would be elected each year. The duty of this advisory council would be to O. K. urgent important matters which came up and which it would be difficult to refer at short notice to the class as a whole. It should also have charge of the finances of the class, except that it would not have charge of any *permanent* fund the class might decide to establish. The secretary would receive his necessary funds from the advisory council. The establishment of representative correspondents for the unorganized groups, small or large, of members of the class could be left to be arranged for by the secretary.

The geographical register printed for the last issue of the REVIEW brings a number of interesting facts to light. It appears that up

to date of publication three hundred and eighty-nine replies had been received, or exactly one hundred more men had responded than received degrees last June. This is what we want,—the co-operation of everybody who was ever associated with our class,—and it is gratifying to know that such a large number of our comrades appreciate it. Geographically, the class may be conveniently divided into two grand divisions, those in New England and New York and those outside of this locality. Thus there are two hundred and fifty-four men still in the first division, and one hundred and thirty-five in the second,—nearly two-thirds to one-third. One hundred and eighty-two men find old Massachusetts about right, forty-eight have got as far as New York, Pennsylvania claims twenty-two, and Ohio fifteen. Seventeen men have (temporarily, it is to be hoped) forsaken the Stars and Stripes for other shores.

From all the data thus far obtained it seems that twenty-six of our men are doing work for which their Tech training has not especially fitted them. This, we believe, is an evidence of the broadness and elasticity of the Institute courses of study and also another argument in favor of technical education in general. Eight of our classmates are married.

Among the following letters are some which could not be printed in the January number of the REVIEW, owing to lack of space.

[N.B.—The secretaries would like to be notified if any members fail to receive their REVIEW.]

In Philadelphia the men are organizing well. From Clarence B. Powell we have the following interesting account, dated January 26:—

The '06 men who came to Philadelphia have been given a royal welcome, which is certainly in keeping with the friendly spirit of the Quaker town.

In the October issue of the REVIEW appeared a letter from H. LeR. Walker, '05, asking to hear from the '06 men in this city. Not content with this, he found our addresses in the same issue, and invited us in the name of the Tech "'05 Quakers" to meet the '05 men. About fourteen fellows from both classes were there. Cards, Tech songs, and a substantial supper made the evening a most delightful one. The '06 men present were

P. E. Tillson, H. W. Dean, N. A. White, A. C. Taylor, D. C. Davis, and myself.

Shortly before then Wolfe, who was here with the Schuylkill Bridge Company, left for a geological surveying job in Colorado; but we understand the board there failed to satisfy his home tastes, and he is now safely in the shelter of West Medford.

Davis took a few weeks off about Christmas time, and went home to recover from too much Schuylkill water and too little home food.

Two more '06 men have been added to our list, P. N. Critchlow, with the American Bridge Company, and R. H. Booth, with the American Telephone and Telegraph Company.

At the annual meeting of the Technology Club of Philadelphia, held recently, Booth was elected secretary-treasurer, and Tillson a member of the executive committee.

On the 23d of this month the '05 and the '06 men again gathered together, this time at the Windsor Hotel, for an informal dinner. Perhaps the day of the month had something to do with it, anyway the admirable menu, arranged for by Landers, '05, suffered a serious defeat in a very short time. After coffee, Booth gave us a sketch of the plans of the Philadelphia Tech Club, an account of which will probably appear in the REVIEW, and the "'05 Quakers" extended a cordial invitation to the '06 men to join them.

An informal reorganization into the "Tech Quakers" was effected for the purpose of keeping up the Tech spirit, holding monthly meetings of a social nature, and giving a united support to the Philadelphia Club. Walker, '05, was elected president; the writer, secretary and treasurer; and Landers, '05, Booth, '06, and Critchlow, '06, members of an executive committee.

George Burpee made us a flying visit this month while on his way from Kentucky to his home in Maine. He is shortly to take a position with Westinghouse, Church, Kerr & Co. in New York.

We occasionally get to see another Course I. man, H. B. Orcutt. He is with the Phœnix Bridge Company at Phœnixville, Pa.

—W. H. Harvey (XI.) writes enthusiastically of his work. He says he is "what I suppose you may call" an assistant foreman on the Pennsylvania tunnel work at New York. Harvey truthfully says that "there is more money in New York than anywhere else," and by the tone of his letter we judge he may be "getting next" to

some of it. He is in the employ of the O'Rourke Construction Company. Before taking his present position, Harvey was for a time in the engineering department of the New York Board of Water Supply, and later in the service of the Charles River Dam Commission, where there was plenty of "good experience" to be had.—G. C. Simpson (I.) left Columbus at the beginning of April for Boston, where better opportunities seemed open. Simpson has been on the Pennsylvania Railroad—Indianapolis Division—since September, being connected with the maintenance of way department.—Ranney (I.), formerly '06, reports that Professor Swain merely showed the class of 1906 the beginning of the fireworks, and that he explodes a new bomb every day for '07, and occasionally touches off the whole magazine.—"Pete" Barnes (I.) still prefers White Plains to the Big City. Pete doubtless expresses the sentiment of the entire class when he says, "How we *shall* miss those finals!"—Edwin D. A. Frank (II.) writes of a vigorous course of sprouts with the Allis Chalmers Company:—

> I am at work ten hours a day; and, as what I have to do is fairly heavy work, and my strength is none too great, I am much more ready to sink into sweet slumber than to write letters when evening comes. . . . In such a concern as the Allis Chalmers Company, which produces such a variety of things, you can, if you keep your eyes open and your mouth shut, learn a great deal about the work. Purely on this account I have already refused one very good offer which I received. . . . I spend my evenings reading up—often in my old text-books, *except* those on mill engineering—questions that have come up during the day, and am also finding time to read snatches of good literature, perhaps a chapter a day, in such books as George Eliot's "Adam Bede," etc. Never miss a chance—how different from Boston!—to see something really good at the theatre or hear something good in the musical line. . . . The Cornell boys around Milwaukee have formed an organization and every two weeks, approximately, they have a grand pow-wow, and all enjoy it immensely. The "Techers" here have not as yet made any (concerted) move towards having a good time, so far as I am aware.

—Charles T. Bartlett (I.) was sick for a fortnight or more in the latter half of March with typhoid fever. The fever itself lasted

only a few days, but it took "Bart" some time to recover from its effects. We certainly rejoice with all his immediate friends in knowing that Bartlett is again up and doing—the Pennsylvania Railroad. —E. M. Eliot (VI.) writes us a glowing letter which shows how life in the Golden West is taking hold of him:—

This country is an engineer's paradise. You ought to know that. Loads of new railroads coming in, lots of surveying, bridge-building, etc. Rich and productive lead and silver mines in the Cœur d'Alene and other districts, with more being opened up daily, and countless millions of ore still untapped. Fertile soil, requiring irrigation only to make it produce splendidly. Lastly, factories and buildings going up in the town and country. Four long-distance lines run, or will run, from Spokane, 150, 400, 25, and 20 miles, respectively: the 400-mile line to Seattle is only projected as yet. Light and power and street cars for Spokane, power for irrigation in the country, power for the mines and factories, lights for twenty or thirty towns around here, and for their factories, furnish ample scope for electricity. The river furnishes the power. Hence the field is wide open for the civil engineer, the hydraulic—particularly the irrigation—engineer, the mining, mechanical, and the electrical engineer, the architect, and in Spokane the sanitary engineer. Spokane land is a fine investment, so is Spokane business; but the best investment of all is mining stock. For every producing mine there are three holes in the ground; but, if you can get an inside track, there are fortunes in the hills. Inside tracks, needless to say, aren't lying around loose, and the small investor stands very little show of escaping unstung.

The biggest electrical stunt here is the Spokane and Inland Empire Company, run by J. P. Groves, of Brooklyn. It is a consolidation of the Spokane and Inland, Cœur d'Alene, and Spokane Traction Companies. It has big money, modern equipment, enterprising management, and liberal charter and franchises. . . .

Seattle, too, is booming in electricity. The Seattle Electric Company (*i.e.*, Stone & Webster) are to build two new plants of 2,500 H. P. total capacity, and a railroad into Portland in the near future. . . .

Have now had experience in general electrical repair work, switch, line, generators, and transformer construction and setting-up work, also lighting, battery, and single-panel work to such an extent that I am no longer an ignoramus on the subject. . . .

This work makes it hard to study. I haven't touched my mathematics, but keep "read up" in the *Electrical World*, and keep one technical book going. Letters are my biggest nuisance. Sent to Paris for Blondell's article on "Transmission Lines," and have been well repaid for my trouble. Have taken lots of good photographs, and have bought a .35 Winchester automatic.

—Norman P. Gerhard writes from Kingston, N.Y., Nov. 18, 1906:—

I was appointed assistant engineer of the New York Board of Water Supply in October, and am stationed here at Kingston in the office of the real estate division of the Reservoir Department. This division has the work of surveying and mapping the properties to be acquired for the great Ashokan Reservoir, which is to be built in the valley of the Esopus Creek, to supply the city of New York.

—In December "Bill" Deavitt wrote as follows:—

I notice in the last issue of the TECH REVIEW I am reported in Aguascalientes, Mexico. I did leave the United States, but went North instead of South, and for over four months have been with the Canadian Copper Company. Until this month I was in Copper Cliff, where I was connected with the laboratory, and had charge of the sampling for a while. At present I am about twenty-five miles from Copper Cliff, and am assistant to the captain of the mine here. I believe you were here on your summer school trip, so won't need to describe the place.

—Philip N. Sadtler, at Duncan Mills, Mechanicville, N.Y., is with the West Virginia Pulp and Paper Company at that address. He says under date of Oct. 6, 1906:—

The prospects with them are very good, and new and varied work very plentiful. I am still unmarried.

—Bob Hursh writes:—

I am getting along pretty well, and have plenty of work all the time. I like Mexico very much, and think there is a great fortune ahead for mining and smelting. This company is first-rate to work for, and their plants are well managed and up to date in every respect. . . . I am on night shift at present moment, and have not time to write more.

—Wendell P. Terrell, at Prairie View, State Normal and Industrial Institute, Texas, wrote Oct. 29, 1906:—

I am hard at it. About a month and a half ago I was not thinking of coming down here. But I am here, and besides have a chance to do good work. Some of the work I have charge of is entirely out of my line, but I believe I can do it. Besides class work, I have supervision of the carpentry and blacksmith shops, laundry, power plant, and repairs. . . . Where are the other boys in Texas located? I would like to know.

I have not told you my title yet. It is "Superintendent of the Mechanical Department and Professor of Drawing." I am going to have it changed, if possible.

—"Hank" Mears writes from Bisbee, Ariz., Nov. 5, 1906:—

I am now at Bisbee, working underground for the Copper Queen Company at the Spray Mine. This is just to get a little practical experience, and I have gone in with the understanding that I shall be changed from one position to another. I may stay here a year.

I am not struck on Bisbee itself, although the mine is pretty fine.

—"Bill" Sheldon writes from Aspen, Col., Jan. 15, 1907:—

This little camp is up here in the Rockies, not far from Leadville. Silver is the mainstay of the town, so there has been a small boom here since the rise in silver.

I am here trying to learn a few things about practical mining, beginning from the ground down. Mr. Wilcox, the superintendent of the Smuggler Mine here, is Tech, '87, and he has given me the run of the mine. I started in "single jacking," then I went on the timber gang, then laid track for a while. Am now going to help on a machine, then take a few stunts with the chain gang. I've been at it since November, and am beginning to feel at home underground. There are quite a number of Austrians, dagoes, French, and Swedes working, so I am getting on to a number of lingoes.

—In November, 1906, Wetterer wrote in part as follows:—

Dallas, where I am located, is a thriving city, and has grown wonderfully within the last five years.

—Carl E. Hanson, at 76 Franklin Street, Lynn, Mass., writes March 26, 1907:—

I have been draughting for the General Electric Company for nearly five months, and have been getting some excellent experience along just the lines I desired. I am in the special tool and machinery department, where they design special tools and machines which they need in manufacturing their product, and cannot buy. My work has been mostly designing. The engineers tell us what the machine is to accomplish and the method, perhaps; and then we have to get out the machine and the tools for it.

—Fay Libbey writes from Cobalt, Ontario, March 4, 1907:—

I am helping work a claim here in this remarkable district, and am having a very independent life. We are about four miles out of the town of Cobalt, but we have a warm house and a couple of dogs; and, when the temperature doesn't go down out of sight, it's very comfortable here.

—Sylvanus W. Wilder (II.) writes (from Paterson, N.J.) in part:—

I occasionally go up to New York to the Tech Club, and enjoy it immensely. On March 30 I went up, and about six of the '06 men were present at a smoker given to '98, '99, and '00. When it gets around to '04, '05, '06, we predict the house will not be able to hold us. . . .

The class will sympathize with Richard McKay (III.) who was called home early in April by the sudden death of his mother.—From the Lawrence (Mass.) *Telegram*, Jan. 22, 1907, we have the following:—

John J. Donovan, of 34 Sargent Street, North Andover, with Emest & Flagg, architects, 174 West 109th Street, New York City, is at present the supervising architect on the Singer Sewing Machine Company's forty-one-story building being erected at the corner of Liberty Street and Broadway, New York City, which, when completed, will be the highest building in the world.

Mr. Donovan graduated from Phillips Andover in the class of 1902 and from the Massachusetts Institute of Technology in the class of 1906, winning signal honors.

He has been with the New York firm named since his graduation, and

up to a short time ago was located in Pittsburg, Pa., but, when operations were commenced upon the erection of the mammoth Singer building, he was transferred to the metropolis.

Mr. Donovan learned the trade of a brick-mason before entering Phillips Andover, and was recognized as an exceptional workman. Working at his trade during the summer vacation, he was able to earn money enough to pay his schooling expenses during the fall and winter months. From Andover he entered M. I. T., and the brilliancy exhibited by him during his course attracted the attention of the faculty, who considered him one of the brightest men in his class.

Securing the practical side first, and then taking up the theoretical, Mr. Donovan is now prepared to make a name for himself in the architectural world.

—Wallace R. Hall visited his home in Newton Highlands early in February.—Blodgett (I.) is still on construction work in Louisiana. Is at present engaged on bridge across Lake Pontchartrain. Gets into New Orleans once in a while to observe the beautiful Creole belles, etc.—Farwell (I.) reports three feet of snow at Buford, No. Dak., during March. He is doing reinforced concrete design for the United States Reclamation Service.—J. Edward Griffin (I.) was in Boston in March on a month's vacation, to attend his sister's wedding. He has been surveying in open pits and underground for the Meriden Iron Company. He finds the weather a bit cold up there in the winter time, and makes a toboggan slide once in a while with the transit. He manages to dodge the ore blasts.—It is reported that the *Mining World* recently published a picture of George Henderson seated in an automobile in the desert.—From the South Framingham (Mass.) *Tribune* of March 15, 1907, we have:—

The many friends of Arthur E. Wells, a graduate of the Framingham High School, doing the four years' course in three years, and afterward graduating with honors from the Massachusetts Institute of Technology, are pleased to learn that he has been appointed to the position of head chemist of the American Smelting and Refining Company of Salt Lake City. He was promoted over the heads of several older and more experienced men. It is not always pull that wins the good places, but ability, grit, and perseverance.

—Charles E. Johnson (II.) has been away from Boston on a trip of inspection in Maine districts for the New England Telephone & Telegraph Company.—"Stew" Coey (VI.) was in Boston in latter part of March. He has been inspecting in electrical insulator work.—Edwin B. Bartlett writes from Norwood, Ohio:—

Leland Woodruff (VI.), and myself are here in Cincinnati, working in the Apprentice Course of the Bullock Electric Manufacturing Company. It is hard work, but gives one a great chance to learn.

—George Henderson (III.) writes from Rhyolite, Nev.:—

I came down here from Minnesota the first of November. I like it very much. The country is new, and things look very promising. Wee Williams came on the first of the year, and is working for a firm of mining engineers here in town. I get all kinds of work here, and am learning something new every day about mining. I do the assaying, surveying, and general office work. The general manager of the company, Mr. Blackmer, is a Tech man of '98.

Rhyolite is a town of about twenty-five hundred inhabitants, and what it lacks in numbers it makes up in hustle. There are quite a number of mines in the immediate vicinity of the town, all being gold mines. Living is rather high, it costing $50 per month for board and $25 for a room, but wages are high in proportion. Nobody gets less than $4.50 a day. There are mountains all around us: to the south-west lies the Funeral Range, which is on the eastern side of Death Valley. The vegetation here is principally sage brush, cactus, and sand. The weather now is great, being just like spring back East, and the nights are cool. They say it gets hot as the devil in the summer time, but I guess I can stand it O. K. When is the next number of the REVIEW coming out? Soon, I hope, as it is good to get the news from the other boys.

—Cliff Wilfley (III.) wrote from Maryville, Mo., in February:—

With snow on the ground and snow falling, the absence of jingling sleigh-bells makes me think of last winter when I thought it strange that they used bells on their horses with all kinds of vehicles there in old Boston. We hear them occasionally when we get the fair maid of our choice, and take her out for a sleigh-ride.

And in March from Denver, Col.:—

Here I am up in the air so high that I have to carry a made-to-order, pocket-size Ingersoll compressor in my pocket, which delivers air through a tube into my lungs. I picked up my duds, and skipped to Denver on the 5th, where I had a swell time visiting my uncle's folks and chasing the wind in the fastest car in Denver.

It's somewhat snowy up here, but not really cold weather; and I think I will get acclimated tolerably readily. It takes my breath to walk up one or two of these 1,000 per cent. grades to my boarding-house. I rather think I will like Mexico better if I can get strong enough to do all the work I want to do.

In Denver I went around to Willis Caypless' house to see him, but found he had recently been transferred to Pueblo. I was going to look up Varian, too, but got my sailing orders so suddenly I had to hurry.

The following changes of address have been received since the January issue: Robert E. Cushman (II.) reports that he and Burleigh have resigned their positions with the car heating company in Albany, and are now employed as draughtsmen by the American Bridge Company, Wilmington, Del. They work at the Edge Moor plant which is some three miles out of this city. The address of both is 405 Washington Street, Wilmington, Del.—William A. Sheldon, (III.), Aspen, Col.—Herbert L. Williams has changed from Lead, So.Dak., to Box 54, Rhyolite, Nev., with Cameron & Cox, mining engineers.—Raymond J. Barber (III.), care of Minas del Tajo, Rosario, Sinaloa, Mexico. He is shift man in the cyanide mill.—H. A. Terrell (II.) has returned to Tech for the second term. —Clarence E. Lasher (VI.) has left Lynn to go West in the electrical line.—Shirley P. Newton (V.) has changed from work with Dr. Gill at the Institute to the Sherwin-Williams Paint Company in Ohio.—H. E. L. Lewenberg (X.) is now located at 164 Front Street, New York City, with chemical engineers.—James H. Polhemus (III.), who went to the Joplin zinc district, gives his address as Carthage, Mo. "Dick" is well located, likes his work, which is varied, also the company and his associates, and he expects to learn much in the district.—William J. Deavitt (III.) is reported early in

March out in Iron River, Mich. Address, Iron River's New Brick Hotel.—Nestor M. Seiglie (I.) is now first assistant with the Department of Public Works at Moron, Camagüey, Cuba.

The following men have been located by the secretaries since the last issue of the REVIEW:—

J. H. Peabody (IV.), with Peabody & Stearns, 53 State Street, Boston, Mass.

Carl Emil Hanson (II.), 76 Franklin Street, Lynn, Mass. Draughtsman in special tool and machinery department with the General Electric Company.

Samuel Peter Sargent (VIII., X.) returned to the Institute after a year of absence, but was obliged to take a rest on account of poor health.

Leland Woodruff (VI.), 4926 Linden Avenue, Norwood, Ohio, Apprentice Course in the Bullock Electric Manufacturing Company.

John H. Fellows (II.), New Britain, Conn.

Lemuel D. Smith (XIII.). His address was incorrectly given in the October REVIEW. It should be 153 East 86th Street, New York City, with "The Winthrop Press" at 32 Lafayette Place.

Royall D. Bradbury (I.), assistant in civil engineering, Mass. Institute of Technology, Boston, Mass.

John C. Daly, Jr. (III.), 47 Townsend Street, Roxbury, Mass.

Carl F. Edwards, B. S. (XIII.), '06, 635 Y. M. C. A. Building, Newark, N.J.

Thornton M. Gilmer (I.), with engineering department, Consolidated Gas Company of New York, 208 West 72d Street, New York, N.Y.

Charles A. Holmquist, B.S. (I.), 334 Plymouth Avenue, Rochester, N.Y.

James G. Riley (V.), 12 Fiske Street, Waltham, Mass.

Charles J. Rich (II.), 15 Cottage Street, Norwood, Mass.

Edward L. Mayberry and Llewellyn A. Parker recently announced that they had established an office for the practice of Structural Steel and Reinforced Concrete Engineering under the firm name of Mayberry & Parker with offices at 372–373 Pacific Electric Building, Los Angeles, Cal.

BOOK REVIEW

PHOTOGRAPHY FOR STUDENTS OF PHYSICS AND CHEMISTRY

By Louis Derr, M.A., S.B. Macmillan Company, 1906.

The volume before us is the outcome of a series of experimental lectures which the author has given for a number of years at the Institute, and is designed for a class of readers with some knowledge of the principles of physics and chemistry. The subject is treated from a thoroughly scientific point of view, and the student will find compressed within reasonable compass an admirable treatment not only of matters relating to the choice of photographic apparatus and the procedure to be followed in making a finished picture, but also the reasons and in many cases the theory, so far as it is known, for each step of the work. The scope of the subjects treated may be seen from the following résumé.

The first portion of the work is devoted to a discussion of the optics of the camera. This includes an interesting introductory chapter on pin-hole photography, a description of lenses and lens systems, and an admirably clear treatment of their errors and limitations due to aberrations, astigmatism, distortion, ghosts, etc. There is also included a chapter on the classification of lenses, including telephoto-lenses, and on lens-testing, together with a full discussion of the function of the diaphragm and the effect of "stopping" upon the resulting photographic image.

Comparatively little space is devoted to a description of the various types of cameras and their accessories, as these are of less vital importance from a scientific point of view.

The chemistry and manipulation of the various steps involved in making a photograph, including exposure, development, and printing, are next taken up in detail, the subject being introduced by a preliminary chapter on photochemical action. This intensely in-

teresting topic might perhaps have been discussed with advantage at somewhat greater length, so as to have included, for example, the results of the beautiful investigatoins of Bunsen and Roscoe on the laws of photochemical action and photochemical induction. The chapter on the intensification and the reduction of negatives with microphotographic illustrations of the effect of various intensifying reagents forms a valuable addition to this section of the work. The chapter on lantern slides will also prove very welcome to teachers, and to all those interested in optical projection, for the many practical suggestions which it contains.

The work concludes with a discussion of several practical methods of testing shutter exposures and with a chapter on the present state of the art of color photography, including the processes of Lippmann, Ives, Joly, McDonough and Wood.

The whole work will be most warmly welcomed by all interested in photography from its scientific aspect, not only for its reliability, for which the wide personal experience of the author in photographic matters is guarantee, but also for the admirable manner in which so wide a range of subjects has been condensed without the work assuming in any way the form of a hand-book of directions.

In conclusion, a word of praise must be added for the excellence of the press-work and illustrations, many of which are new and taken from the author's own negatives.

H. M. Goodwin, '90.

The Technology Review

Vol. IX. JULY, 1907 No. 3

ALEXANDER STRONG WHEELER

MEMBER OF THE CORPORATION OF THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY, 1882–1907

Alexander Strong Wheeler, whose death on April 13, 1907, deprived the Corporation of the Institute of one of its oldest, most devoted, and most important members, was born at East Sudbury (or, as it is now called, Wayland), Mass., on the 7th of August, 1820. The Wheeler family came from Concord, though his grandfather, Abner Wheeler, lived in Lincoln.

His father, Asa Wheeler, was unfortunate in business, and, when Alexander was three years old, his parents moved to Orford, N.H., the birthplace of his mother, Emily Strong, and the home of his grandfather, Alexander Strong. His father and mother continued to be poor, but Mr. Strong was a prosperous farmer, with the ambitious desire to send one of his grandchildren to college. He wisely chose Alexander for this career, and sent him to school at Meriden, and afterwards at Haverhill, to prepare for Dartmouth. The grandfather died before his plan could be carried out, but a half-brother of Alexander, some ten years his senior, aided him, and he himself was able to earn something by teaching school in the vacations, and thus make his way

through the college from which he graduated in 1840. He had already selected the law as his profession, and after tutoring for a year in a private family in Orange County, Va., entered a law office in Troy, N.Y., declining an offer of a clerkship in one of the departments at Washington. After a year at Troy he attended the Harvard Law School, and, though he could afford to stay but for one term, he always looked upon the training he received there under Story and Greenleaf as invaluable, and regarded them as ideal teachers.

In 1843 he entered the office of Sidney Bartlett as a student, and the day before his admission to the bar Mr. Bartlett, who was already one of the leading lawyers in Boston, offered to take him into partnership. Attractive as this offer was, he declined it without hesitation to carry out an arrangement which he had already made with his classmate, Henry C. Hutchins. This was the turning-point of his career. He was still indebted to his brother for a part of the cost of his education, and the brave and honorable resolution to forego the assured position and income which Mr. Bartlett's proposition gave him, and to start instead with a partner of his own age to make his own way, rather than disappoint a friend, was highly characteristic.

The connection between Mr. Wheeler and Mr. Hutchins was a remarkable one. Born on the same day, the former in East Sudbury, Mass., the latter in Bath, N.H., they met for the first time at school in Haverhill, became friends, were classmates and finally room-mates at Dartmouth, separated temporarily after leaving college, but as soon as possible formed the partnership which lasted during their lives and has been continued by their sons. The close intimacy between them was by no means confined to business.

When they were for any reason separated, their correspondence was frequent and regular. The partnership lasted for fifty years, from Jan. 1, 1844, to the death of Mr. Hutchins, Oct. 28, 1894. During that time there were several periods of years at a time during which one or the other partner was, by reason of illness or accident, unable to do any part of the work, yet no change was ever made in the division of the income.

It may be interesting to recall that after the Boston fire, when almost all the local insurance companies had failed, Mr. Wheeler acted as their counsel, attended to their reorganization, and drafted and presented to the legislature the statute which made this possible. This is not the place, however, to speak at length of Mr. Wheeler's professional career. He was the trusted adviser of a very large number of active business men, and he made use of his legal knowledge, his practical good sense, and the influence over men which was given him, partly by these qualities, but above all by his brave, simple, and kindly nature, to avert quarrels and prevent unnecessary litigation. Mindful of this, his family, when asked to choose one of the beatitudes as the subject for a memorial window which they desired to place in Arlington Street Church, selected "Blessed are the Peacemakers."

Recognizing the value of Mr. Wheeler's business judgment and sound common sense, some of his clients, who were corporations, asked him to act upon their boards of directors, and the Second National Bank and Bigelow Carpet Company greatly appreciated the long and faithful service which he rendered them in this capacity.

He felt it part of the duty of every one to give a portion of his time and strength to public and benevolent work, and was for many years one of the trustees, and also for a time

the president, of the Boston Asylum and Farm School. He was elected into the Corporation of the Institute in 1882, and was placed upon the Committee of the School of Industrial Science, a comparatively large body, to which, in connection with the President, was intrusted the management of the institution. After Mr. Rogers's death he took an active part in remodelling the by-laws and substituting for this large committee the present small Executive Committee. Of this he was one of the original members, and to the time of his resignation, in 1902, he continued to be most active and attentive to its duties. He thus took part in the decision of all the important questions which confronted the Institute during that long period, and gave gladly the benefit of his legal knowledge, large experience, and wise estimate of men and things. His kindly disposition and warm sympathy with the feelings and opinions of others led him to cultivate and encourage the greatest harmony and friendliness in the committee and in the Corporation and between them and the Faculty. He was a fervent and devoted admirer of the Institute and an optimist as to its future, jealous of its reputation and high standards, and willing to go very far in favoring any desirable enlargement, whether in land, buildings, curriculum, or staff, in the confident faith that, if the work were good, the financial support would not be lacking.

Mr. Wheeler was sincerely religious, and never failed to attend church on Sunday when physically able, and in his household he kept up the old fashion of conducting family prayers every morning. He was a member of Arlington Street Church in Boston, and served for some years on its Prudential Committee. He was also trustee of the Massachusetts Bible Society, and a member, and at one time president, of the Unitarian Club.

While never a candidate for any political office, he took a great interest in public questions, and wrote papers on the Tariff, on Socialism, on Banking, Labor, and other subjects of that character, some of which were published in magazines, and some read before the Boston Commercial Club or other organizations.

Such a brief account as I have been able to give presents but a poor picture of Mr. Wheeler's character, which was at once strong, broad, and charming. His sympathies were wide, and his kindness and courtesy to young men was most striking, as the writer has often had occasion to appreciate. Particularly, also, his heart went out to those who had their own way to make, and to this was due much of the love he bore the Institute.

WILLIAM LOWELL PUTNAM.

AMERIKANISCHES HOCHSCHULWESEN

EXTRACTS FROM A PAMPHLET PUBLISHED IN LEIPZIG BY DR. W. BÖETTGER, PRIVATDOZENT AT THE UNIVERSITY

Translated by Chauncy C. Batchelor.

When I received an invitation to spend a year as Research Associate in the Research Laboratory of Physical Chemistry at the Massachusetts Institute of Technology, I was inclined, in the first place, to accept because I had made the acquaintance of a considerable number of the many American students who visit the University of Leipzig (especially the Physical Chemistry Institute), and thus had a good preliminary knowledge. In the second place I was glad of the opportunity to work in the school of one of the best-known chemists of America, and to become acquainted with the methods of instruction in American institutions of the higher learning.

In this essay I have recorded not merely my impressions of the things which appear especially remarkable to new-comers in America, but rather a few observations on which I have based some conceptions formed after mature consideration, in part not until several months after my return home. With this caution, I think, it becomes easier to separate the real from the unreal. The danger of confounding the incidental with the typical, and thus getting a false conception of conditions in America, is greater than might be expected. Soon after the visitor arrives in the new country, owing to the overpowering and contradictory impressions which he receives, he falls into such a mental state that, unconsciously, he is unable to make clear observations. This condition lasts the longer, the more the traveller attempts to see. It soon becomes evident that this hasty method leads to injustice, but nevertheless the observer realizes that he is helpless before the multitude of widely varying phenomena. Not until much later does he become convinced that it is not a hopeless problem, but that, however, he must observe and experiment care-

fully before he can draw any very far-reaching conclusions. If I am not mistaken, many criticisms which I consider unjust, and which I mention in the following pages, are due to just this incomplete clarification of ideas.

The Institutions of Higher Learning

Among the many problems which press for solution in an article concerning a country of such strongly pulsing life, I shall pay special attention to education, and in particular to the institutions of higher learning. The more detailed discussion of this subject seems warranted because of the interest shown in various ways by Germany in the development of college education which has occurred in America during recent years. This attention is doubtless justified; for we need only remember that the public high schools established lately in certain German cities have existed for over sixty-five years in Boston, and the academies of practical medicine founded a few years ago are anticipated by schools in New York. It is certainly not too much to say that America in matters of education, and particularly in those of higher education, is the land of experimentation on a large scale. Familiarity with American college education will be instructive in another respect. We not only may obtain data for the solution of problems which with us are only in the theoretical stage, but, on closer consideration of what we may observe there, we may find underlying principles, the knowledge and consideration of which will be of great value.

It is easily comprehensible that we in this country should have hitherto paid little attention to American college education, for German universities enjoy such world-wide reputation that it would surely be reckless to doubt the soundness of their fundamental principles. Moreover, university education in America has assumed its present significance in perhaps only the last thirty years, although some universities, like Harvard, Yale, Princeton, and Columbia, are considerably older. The whole movement is, then, much younger, and for that reason more practical. We might be tempted to believe that the study of a system

of higher education still in active process of development might be rather purposeless, because it is unfinished. It can only be answered, however, that this makes the study difficult, but not futile. In many important problems Americans have already established their position. It is only the form of expression, then, which changes. Regarding certain other problems there is disagreement, and so various experiments are being tried; but among us many of these problems are left untouched.

It may be stated with certainty concerning their activity in the province of higher education that the Americans, in the short space of a few decades, have obtained very notable and original results. This is not very surprising upon closer examination; for we have only to remember that many young Americans, after ending their studies at home, go abroad to complete and enrich their education. They return in due course, not only with their diploma, but, what is more important, with a broader view of the world, which, doubtless, materially helps their later activity as teachers. Therefore, it is no wonder that the prosperity of the American colleges, and with it the growth of knowledge, has come upon them so swiftly.

American colleges in the East are practically all private institutions. In the Central and Western States, state and private colleges exist side by side. Primarily, the advantages of the state as against the private university seemed to me so obvious that, soon after my arrival in Boston, I asked an American professor whether there was no prospect of the private universities being taken over by the State. The brief answer: "There is no danger of that," surprised me at the time very much. Since then, however, I have become convinced that the system of private universities, at least under existing conditions, is quite practical. If, in the following pages, I confine myself chiefly to the private universities, I do so without any implication that the founding of private universities here is an object worth striving for. Our discussion must be limited to those circumstances which increase the effectiveness of the universities as institutions for the deepening of knowledge and the increase of power, which in our system do not play such an important part. The most important difference between State and private universities

is that the latter receive no subsidy from the State and consequently are more independent. For this reason, however, the president of the university not only must be the intellectual leader, but also has thrust upon him the onerous duty of providing the necessary means for the subsistence of the university. Under conditions with which we are familiar, this would be an impossibility; but in America, where so many people have acquired wealth easily, it is essentially less difficult. Even so it is hard enough, so that the ideas which we get of the wealth of American universities are quite often without foundation. This system, however, unavoidably smacks somewhat of commercialism.

This circumstance may easily appear to us very disadvantageous, and it cannot be denied, perhaps, that the complete, or almost complete, independence, and the resulting material self-reliance, have the immediate effect of placing the private university and its achievements at the mercy of chance circumstances, such as the intellectual and financial activity of the president and the interest of rich people, when the corresponding official aid of the State is lacking. We must not overlook the fact, however, that this method of college organization also offers advantages, especially since the same man who is responsible for the competent instruction and who, with the help of other officers, governs the economic interests of the college, remains in closest connection with the college, with its vital interests and with its sphere of influence. As a result, more attention is paid to local state interests than in a system of economic centralization. The organization of the American university favors differentiation, but this differentiation can normally apply only to those details which affect the existence and influence of the institution. As soon as differentiation is carried to such a point that one college falls below another in achievement, then attendance decreases, and its existence is imperilled. Since the consequences of this failure to obtain definite results do not make themselves felt quickly, we may perceive in this another advantage,—that of greater mobility and easier adaptability, which, to be sure, involves sometimes a great disadvantage, that of instability.

The necessity for financial self-support requires that capital should

be laid out only on those things which are strictly necessary for carrying out the purpose of the institution. The lecture and office buildings are constructed in a simple style, the older ones are without decoration. There are exceptions, of course; but in the general interior finishing of most colleges this principle of economy is shown. The auditoriums are quite frequently imperfectly provided with apparatus for lecture demonstrations. On the other hand, the furnishing of the laboratories with apparatus for practical instruction is usually complete. As a further result of financial independence, the students must, as explained more fully below, pay an essentially higher tuition fee, in order to bring up the general income.

Of those details concerning the students which are unfamiliar to us, we may note that the schedule of studies is more or less strictly prescribed, and that the student's activity is regularly controlled. This is partly because the relation of the college (the preliminary step to the university proper) to the school is different from that with which we are familiar. The pupil in the American intermediate school does not cover so much ground as has the graduate of the German *Gymnasium*, *Realgymnasium*, or *Oberrealschule*.

Preparation for Higher Study

The regular course of preparation for college consists of a certain number of years spent in the Primary, Grammar, and High Schools. The normal length of time spent in the High School is about four years, but capable students can fulfil the requirements in about three. The average age for graduation from High School is about eighteen years. In general, entrance to any school, and especially to the colleges, is secured not so much by the possession of a certificate showing successful study in some class or in the whole school as by success in passing an examination. It is accordingly not by any means necessary for every boy who offers himself as a candidate for admission to show that he has gone through all these schools. In the requirements for admission to the Massachusetts Institute of Technology it is stated that the candidate must pass the examinations which are held in the Institute or else those of the College

Entrance Examination Board. In regard to the schools it is merely mentioned that the best High Schools are adapted to the preparation of students for the examinations in that Institute.

In these public schools the tuition is free. On the other hand, the tuition fees in the colleges and universities are high. There exists, therefore, a tendency to give the greatest possible number of children, especially those who are least able to make their living, the opportunity to prepare for study at college. Here we find a characteristic departure from what we are accustomed to, which accounts for many essential differences between the two views of life: namely, that the separation of the scholars according to their intended callings begins later in America. The future merchants, land-owners, and members of the learned professions sit together in the High Schools.

Under these circumstances, in order to allow for individual preferences of the scholars without increasing the time allotted to each school day or the school term as a whole, there is a certain limited freedom in the choice of studies. The preparation for study in the university in America does not cover so much ground as here, although the course in the schools (primary, grammar, and high) normally takes about twelve years. The explanation is easily found. The demands made upon the young generation are, with a view to the stronger development of the body in these years, slighter than here. Among the college students, who therefore are in a more advanced state of physical development, the opposite condition is true.

Student Freedom

The preparation for entrance to college which the boy has received in the secondary schools corresponds somewhat to that for entrance to the first class of our higher secondary schools. The preparation for special study does not begin until he enters college. Accordingly, the American student is more restricted during his first years in college. A change is already beginning, however. In the later years at college the student is allowed greater freedom in the regulation of his studies. This circumstance is quite typical;

for, whereas in Germany the work in the later years is not very strenuous for a scholar of average ability,—I myself have not gone through the regular course,—so that those weaker in will and more gifted may easily adopt a habit of *dolce far niente*, in America the young man at his entrance to college, at an age when impulse to high activity is roused, finds in the raising of the requirements a wished-for opportunity to test and further develop his capability.

The student, accordingly, does not attain so suddenly as here the freedom of an elective system, and he is preserved from mistakes which entail heavy consequences. Perhaps the argument may be advanced that our system is preferable because those who do not make the right use of the freedom granted them, sooner or later drop out, so that finally only those arrive at their goal who appreciate the privileges and duties of student freedom. This reasoning is, to be sure, logical, but it is one-sided. It suggests that the student already possesses the very thing for which he is about to strive. In America, as well as here, educators are working toward that same end,—free election,—but with smaller loss incurred because of the more gradual transition.

A further and more important argument against the American system is that the growing man is deprived of an important opportunity for strengthening his sense of responsibility. It would require too much space to describe how this end of education is attained. In the following pages the story partly tells itself. Therefore, I will limit myself to quoting a statement made by Charles W. Eliot, a recognized leader of American college education, and the veteran, successful president of Harvard College, in his book, "Educational Reform" (p. 125):—

> A university which teaches arts and sciences should assure her students of three things:—
>
> 1. Freedom in the choice of studies.
>
> 2. Opportunity to win academic distinction in single courses or in special departments.
>
> 3. An education which teaches each student that he is responsible for his habits and for his conduct of life.

To avoid misunderstanding, let it be clearly understood that the essential difference is not that the American student is more restricted in what he may or may not do, but that he gradually comes to this freedom which the German student has enjoyed from the day of his matriculation.

In connection with this problem let us consider another principle which decidedly distinguishes American methods of instruction from ours. In America the educator believes that the purpose of college education is to raise the quality of achievement of the average man, whereas in Germany the emphasis is notably laid on the task of bringing the best men to their highest development. It seems to me that this is the essential difference between the two systems. The German point of view is characterized by the sentence from Fichte's Rector's Address:—

> We should consider one industrious and adaptable student of more value than hundreds of lazy and incapable men, and if the two kinds may not be handled side by side, let us let the hundred go in order to save the one.

In America, where in most respects, to be sure, no great value is set upon a man's life, the universities are so planned that the powers of men of only moderate ability may be as far as possible developed. The educator starts with the idea that those less gifted by Nature have greater need of an education than those talented ones who make their way by their own strength, if they be given a fair opportunity.

This system has several not inconsiderable dangers. For example, the standards of requirement may be lowered, and thus make possible an invasion of the learned professions by the less worthy. By the following statements, however, we may perceive that great care is taken to guard against this by dropping from the colleges those who show that they cannot fulfil the requirements. Besides, this danger is well recognized, as is shown by the following statement of Charles W. Eliot:—

> The ideals of an educational institution should never be determined by the capacity of the less capable students. A university should, under all circumstances, offer what the best students need, and adapt itself to the

capacity of the poorer ones only so far as is consistent with the first requirement.

The Entrance and Term Examinations

Of those aids to instruction in which the American colleges differ from ours, examinations are of first importance. The American student, as has been mentioned above, secures entrance to college by an examination in which he has to give account of his preparation. This provision, which, moreover, formerly existed in this country, is modified somewhat by the fact that the secondary schools in which the boys receive their preparation show great differences in requirements and actual results. There is now on foot a movement to simplify these entrance examinations by allowing the students of designated High Schools of good reputation to enter without examination any one of the association of colleges. A strong watch is kept on the students of these schools, however, and this privilege is taken away as soon as they show any signs of slackening their efforts.

The examinations are held, in writing, at the end of the school year, June and September. If the student takes the examination in June, he does not have to journey to the college for which he is to be examined, for the examinations may be taken in any state, in several places, under the direction of the College Entrance Examination Board. The proctoring at these examinations is very strict, so that there is no possibility of students presenting work not their own.

The task of satisfying the requirements of these examinations is made easier for the student by the fact that he may divide them among several terms. Moreover, a candidate is accepted provisionally, if he does not pass satisfactorily in all subjects, provided that he takes a condition examination at some time during the first year.

These data, to be sure, do not give us sufficient basis for forming a clear judgment, since we are not told how many questions must be correctly answered. We must recognize, however, that the work of instruction in the American universities is carried on with thoroughness. This fact will be especially surprising to many, since,

in view of the financial independence of the colleges, which obliges them to keep in attendance a sufficient number of students, we should expect that the admission requirements would not be rigidly exacted. Not only is this not the case, but also during the entire course effort is made to throw out, or at least to hold back, those students who do not fulfil expectations. This is brought about through examinations at the end of every term, or, at least, at the end of every year.

The question of the advisability of examinations has roused so much discussion that it would require much space to cite here merely the most important arguments which have been offered. On that subject the reader is referred to the interesting book of F. Paulsen, "The German Universities and University Study" (Berlin, 1902), p. 426, and following. I will limit myself here to remarking that in America experiment has proved in every case that these examinations not only are not purposeless, but that through them good results are obtained. We must add, indeed, that such examinations can be no test of the ability of individual students, but doubtless they show whether the students do the required minimum of work at least, and provide protection against the farther advance of those who do not come up to the minimum standard of scholarship. Here, evidently, the principle mentioned above is applied, that education is chiefly for the benefit of those naturally less gifted. This does not in the least mean that special attention is not paid to those who distinguish themselves by stricter application: that is not the case. As soon as a student, by examination or other test, proves his worth, this is immediately recognized, and every aid is given to advance him, in order to win him for the service of the university, or at least for intellectual work. This is done by granting him, when necessary, a scholarship during his college course or by making it possible for him to attend another university, especially abroad.

The point of view of the young students in regard to examinations may be of interest here. I have the impression that they are regarded as a welcome opportunity for the student to distinguish himself. Without doubt, however, during the period just before examination a great deal of "cramming" is done, and some students, it is reported,

resort to drugs, in order to endure the great fatigue they undergo at this time. I doubt, however, whether this can be regarded as the rule. One incontestable advantage in these examinations is in weeding out the less industrious. However hard it may be for the individual when he is shown by failure in the examinations that he has deceived himself in the choice of his profession or in the estimate of his capability, nevertheless the timely realization of this fact is, in the long run, of greater advantage than the later realization of it at the final examinations of the college course or perhaps so late as the beginning of practical life. That in America there are fewer of the "discontented and disenchanted" to be found in the learned professions is surely not only a result of the universal optimism caused by uncritical overestimation of ability, on which so often people in that country depend, but is also brought about, at least in part, by the more abundant opportunities for the individual to find out whether he is in his right element in the profession which he has chosen.

Let us discuss one point briefly. From theoretical considerations it might seem that this strict regulation of studies might lead the stronger element among the students, because of their individuality, to pursue their studies less zealously, and thus hinder their development. In that case the possible gain would be counterbalanced. To this it may be answered that the really capable students can fulfil the requirements without great preparation, and to these men is given every opportunity to develop their natural gifts. Besides, every young American knows that the "unpleasant pressure" lasts only for the short period of four to five years, and that it is felt only a few weeks in the year, provided that the student uses the rest of the time to any purpose at all. A lasting compulsion and, if possible, an improving effect would be exercised in this way really only upon those who during their course do not themselves gain enough insight to see that regular exercise and development of the intellect are essential parts of study, or upon those who have not the strength of will needed to make them practise this principle. This class of students is doubtless better cared for in America than here.

As a defence of this view, I should like to quote here a statement of Professor Münsterberg. He writes in his book, "The Americans" (vol. ii. p. 86):—

> Germany is most extremely economical of time and strength during the school years, but most spendthrift of both in the university; here and there to the gain of a strong personality, but always to the harm of the average man. America wastes much time during the school years, but is economical during university study, and accustoms the individual to solid work.

Organization of Instruction

On one other question, also, the advantages of the lecture system, which has been repeatedly discussed in Germany, different views are expressed in America. My contribution to this discussion is based upon personal intercourse with college students, and upon the transactions of the American Chemical Society at their thirty-first meeting in Philadelphia (28th to 31st December, 1904) on the subject of laboratory instruction in organic chemistry.

If it is desired to study this question more closely here in Germany, too, a knowledge of American conditions may be of value, because there the system has been tested in a practical manner. The American system aims at limiting the number of lectures which a student hears in a semester, supplementing them by oral recitations, and establishing the closest connection between them and the laboratory exercises. To bring this out more plainly, I have obtained from the catalogue of the Massachusetts Institute of Technology more detailed information concerning the system of instruction for students in chemistry. Such an examination shows that the total number of hours per week is notably small. If we reckon the work hours per week at fifteen, on the half-day basis, and at thirty-four hours, on the whole-day basis, it follows that the total laboratory work corresponds to a seven semester course on the half-day basis or a three semester course on a whole-day basis, for the average laboratory work for eight semesters amounts to thirteen and one-half hours per week. This is in sharp contrast to the customary amount here. The student regularly in the second, and not

infrequently in the first, semester begins with laboratory work of fifteen hours (half-day) and at times even with thirty-four hours.

Since it is conceivably of interest to know also what personal characteristics are especially cultivated by this instruction, I will mention the emphasis laid upon the importance of doing careful work, making thorough observations, carrying the thought to its logical conclusion, and careful revision of reports. In order to guarantee this result, the instruction and oversight during the work is more intensive than is commonly the case here.

This decided diminishing of the practical hours of laboratory work, however much justified it may be at the beginning, may, especially for the advanced students, bring certain disadvantages. If too little opportunity and encouragement are given the student to study a phenomenon according to his own judgment, he will rather content himself with doing only the thing that occurs to him at the moment. On the other side, one disadvantage is avoided which is not infrequently met here in Germany in laboratory instruction,—mechanical work without any question as to the impelling causes for a phenomenon. This is found even in quite capable and industrious but physically less favored students, who in the attempt to get the full advantage of the course, make greater demands on their strength than it can stand. The consequence is that they work on in a condition of weakness to a farther point, indeed, but with less understanding, and consequently with less success, than if they had worked for a shorter time, but with more deliberation.

The deeper study of these conditions would be instructive in still another respect. Laboratory instruction in American colleges involves the antithesis to the ideas developed by Sir William Ramsay some time ago. This successful investigator believes in bringing together the young and old students in mixed classes, in order to give the young beginners the opportunity for broadening their knowledge by observation of their neighbor's work and through conference with older associates. By the American system the students are, for the most part, separated according to semesters, and the possibilities of mutual and, so to speak, gratuitous instruction is lost. This departure from Ramsay's conception, to be sure, has good

reasons. The realization of Ramsay's idea is naturally more expensive; and it can be profitable only where a due number of conspicuously capable students are available. The American institution corresponds to the requirements here,— that a great number of students (often several hundred) must receive instruction at a very limited cost.

The total number of lectures is not smaller in the same proportion as the time devoted to the laboratory. It comprises, for all courses in chemistry during the eight semesters, thirty hours per week. This would be equivalent to six five-hour lectures, but it must be noticed that far fewer lectures occur in a single semester than is customary here, and especially that courses of more than three hours per week are not given. In this way, overburdening and the loss of interest connected with it are avoided.

Besides the lectures and laboratory exercises, oral recitation hours are quite universal in America. They form, as it were, a supplement to the lectures, and establish a medium between the lectures and the laboratory exercises. President Eliot* expresses his opinion on the object of these exercises in the following characteristic and clear manner:—

> Recitations degenerate to dry repetition, and lectures alone mean often a useless waste of effort. The lecturer pumps industriously into a sieve: the water may be very good, but it runs through. The brain must work itself if it is to grow.

In these oral exercises such problems are treated as would require too much time to explain to each student singly in conference. The number of those taking part is generally less than twenty and seldom more than thirty.

According to Paulsen such exercises were held in Germany also (in the eighteenth century), and he mentions as causes for the disappearance of this system the increase in number of students, the wandering of a part of them from one university to another, and the consequent difficulty of personal relations between teacher and student, and finally the dislike of the students for school discipline.

* Speech on accepting the presidency of Harvard University.

On the other hand, it may be said that the increase in number of students is no unconquerable obstacle. In America the education of the masses is carried on in this way. Moreover, the lack of personal relations, which is here caused by the migration from one university to another, is found over there, also, being brought about to a great extent by the fact that the exercises for one course in a single semester are conducted by different instructors. And, finally, as regards the disinclination for school discipline, we may answer that that may be justified only in those cases where the teacher is not skilful enough to avoid dogmatism. I have tried to become better acquainted with this method of instruction by visiting classes, and I must confess that I have often been surprised at the skill with which many teachers interested the students and induced them to talk and to ask questions.

One other arrangement which might easily be termed scholastic, however, I noticed in some lectures. Many teachers interrupted their lecture at designated points, and gave their audience opportunity for asking questions. The system has many advantages. The lecturer has his attention called to any defects in his presentation, which indeed—especially in the case of young teachers—are unavoidable, and the hearers take a more active part in the exercise, because they know that the occasional obscurities must not be allowed to pass unheeded. The objection may be made that too much time may be lost, since in a large audience too many questions might be asked. This must be determined by experience. In two lectures which I regularly attended, I have observed that in an audience of forty to fifty very little time was lost for the purposes of the lecture, to say nothing of the gain accruing to both parties from it. The questions put, too, were very reasonable, and of such a sort as to make clearer the especially obscure points. Of course it must not be forgotten that lecturers in American colleges have before them, except in the first few semesters, a more homogeneous audience, as far as preparation goes. This circumstance decidedly contributes to the success of this plan. Furthermore, it favors the limiting of the number of lectures, for by the fact that the lectures are brought into close connection with each other (remembering that one

set of lectures may be attended by a student only when he has passed the course regarded as preparatory or when it has been shown that the prescribed knowledge has been obtained in some other way) the lecturer is in a position to make good progress without stopping to explain elementary principles.

Miscellaneous

The outward aspects of life at American colleges deserve brief notice. The care of the body and physical health, which receive much attention, find noisy expression in the contests between the students of neighboring or friendly universities. These contests, as is well known, are carried on with so much energy that every year a considerable number of the contestants lose their lives or are more or less crippled. It may be less well known, however, that lately a movement is gaining strength which does not encourage one-sided cultivation of muscle, but an all-round development of the body through appropriate exercises, especially for such as are less favored from birth. Some words from an article of Professor A. A. Noyes, entitled "The Aims of Technological Education,"* express this feeling: "Regular physical exercise may not be regarded as an affair of subordinate importance for the attaining of success in education, but rather as a necessary preparation." And, after stating that the Institute should bring about reform in this respect, he recommends "not only that those few who already possess unusual strength should be encouraged to take regular exercise, but that preparations should be made to induce a habit of moderate training in those who from birth, have a difficult position in the struggle for existence, and who consequently are, up to that time, the least of all inclined to cultivate the strength and health of their bodies."

Another aspect of student life concerns the arrangements, found at practically all American colleges, to avoid unnecessary and fatiguing journeys during the mid-day recess. At Boston the Institute of Technology provides a lunch-room in which good and cheap foods,

* Technology Review, 1905.

both warm and cold, are served expeditiously between the hours of twelve and three. This is of great convenience, not only to the students, but to the professors, assistants, and the women employed n the Institute offices. I mention this to show that the physical well-being of the students and teachers of the college is considered. The situation of the lunch-room is so favorably chosen that in the mid-day recess of one hour there is time to take a short walk after lunch. In this way also a sharp distinction is made between study hours and rest hours, since on account of the shorter recess at noon the work in the afternoon begins earlier and generally ends earlier than here.

It is easy to see that in a university so widely spread out as that of Leipzig, with its complicated organism, such an arrangement cannot well be made. Indeed, even in the city itself that would be unnecessary, and the attempt to bring about such a thing would surely be vigorously opposed by the restaurants. Perhaps the inconveniences which arise from the great distance of the newest "Latin Quarter" from the centre of the city might be lessened in some similar manner. At the same time another often regretted evil might be removed,—the lack of opportunity for exchange of ideas between the younger members of the instructing staff. How easily then could questions which concern other departments be answered without need of calling a conference of the courses!

Of all the impressions concerning the young students which I received, the most distinct is that of their strong loyalty to their college. This feeling of belonging to it, too, does not die out on the day on which the graduating student bids farewell to the college, after the diploma is handed to him in the solemn assembly of the Faculty and friends. The majority of the alumni attend the reunions, and the individual student keeps up during his whole life a more or less active interest in the place where he received an important part of his education,—his intellectual development. This interest is expressed in many ways. Sometimes the rich graduate of a college bequeaths a part of his wealth. This explains how the old universities, like Harvard which, naturally, has such a large number of alumni, receive so many legacies. That, however,

does not discourage many other men from seeking to advance the cause of intellectual education in this same manner. There are, for example, whole universities, such as Johns Hopkins in Baltimore, modelled on the principle of the German university, founded by the bequest of one man.

Aside from this, however, the reunions of the alumni may also have a most decided influence on decisions which are of the greatest importance in settling the position of the college. A case of this kind occurred during my stay in Boston, when the question of the union of the Institute and Harvard University arose. This question was debated in the most earnest manner in a large assembly of the Institute alumni, and it would not be incorrect to say that the final miscarriage of the plan, which had many partisans for and against it, might be ascribed, at least in part, to the outspoken dissent of the alumni.

Concerning the life, customs, and aspects of the undergraduates, naturally a great deal more might be said, but I prefer to confine myself to what I have said and what may be implied from this article, for by the mere mention of institutions and circumstances which are different from those to which we are accustomed I might add to the incorrect representation of American conditions if at the same time I did not explain how characteristic they were and give the observations on which they were based. For such a complete investigation of such questions I lack the necessary data.

Economic Questions

In addition to several remarks previously made concerning economic conditions at American colleges it may be interesting to have further information. As has already been mentioned, the tuition fees paid by the students are essentially higher than here. At Harvard University they amount to $150, and at the Institute of Technology to $250. They vary over the country from $100 to $250 for the college year, which at most colleges, as also here, comprises two terms. The cost of tuition at the state universities is considerably lower. At these either no fees are charged, as at the

Universities of Illinois, Wisconsin, and California, or they amount to no more than $10 to $50, as in Michigan, or $25 to $100, as in Minnesota. The necessity of charging high rates for the tuition arises simply from the fact that the private universities must have some regular source of income to meet the running expenses, since their property and bequests do not grant an income large enough to meet expenses. Therefore, it becomes necessary to call on the students and their parents, and this appears justifiable when we consider that it is chiefly the more prosperous who send their children to college, regardless of the question whether it has been founded by special endowment or not.

This objection is easily answered, however. First of all, there exist at every college numerous funds which are used to help those needy students who, during the school year, have shown themselves to be worthy. I am told, for instance, that at the Massachusetts Institute of Technology ten per cent. of the students receive a half or whole scholarship. At Harvard University (1904–05) out of 5,143 students, from which number 1,007 should be subtracted for the summer school, 403 (that is, ten per cent.) were assisted by scholarships. Among the latter are 58 for the more advanced students, which run from $200 to $1,000. If circumstances require it, the scholarship aid is continued for two or three years in case the successful work of the candidate seems to make it advisable.

Furthermore, absolutely destitute students are aided in getting an education in other ways. In America students think differently about working for their education at unskilled labor. The student who pays his expenses by serving as waiter in the mid-day recess or during the long summer holidays, which last from the beginning of June till the end of September, is not looked at askance, but is generally regarded with especial respect. And when the opportunity to do such work is quite great, and the pay is comparatively high, it is not impossible for a student to "work his way through college." It is naturally quite different when the student is not merely working for himself, but has young brothers and sisters or aged parents to support.

The American system is, therefore, not so unfair as it seems at first sight. The burden of cost falls on those who can endure it, and those who are not in that position have only to show that they are especially gifted or especially strong in will in order to overcome the first most considerable difficulties. They can definitely depend upon it that by the American system of instruction and examination this will be made possible, so that a lack of means forms a strong impulse to greater activity without causing lasting uneasiness about the future and consequently the hindering of the capacity for work.

In closest relation to this question is that of the pay of the university teacher. I will give some figures here to support my statements. The salaries at American colleges amount to about the following sums:—

For a Student Assistant (not graduated) . .	0 to $250	4th Year.
" Assistant, First Year	0 to 500	5th "
" Assistant, Second Year	0 to 600	6th "
" Instructor	$800 to 1,135	6–8th "
" Assistant Professor	1,125 to 2,000	10th "
" Associate Professor	2,000 to 3,000	
" Full Professor	3,000 to 4,000	
" Heads of Departments	3,500 to 5,000	

In order to show how many years must pass before these salaries are actually obtained, I have given in the last column the number of years normally required. For the higher positions it is naturally out of the question to make any estimate.

From these figures it may be seen that the salaries for the younger members of the instructing staff are materially higher than here, where the average pay of an assistant, even after several years' service, comes to perhaps $300, or even less at times. Nor is it to be supposed that the difference is made good in greater value of money. Another very noteworthy fact in the American system is that in the first few years the income increases quite rapidly. It is the rule, at least in Boston, that an assistant in the second year of his service receives an increase, if he performs his duties satisfactorily. And, if he is not promoted to the rank of instructor after

one or two years, it indicates that he does not fulfil expectations, and must count on seeing a younger colleague, who may offer better service in instruction, preferred to him.

The comparatively high compensations are conditioned by various circumstances. The salaries paid by the business and manufacturing houses which the young students might enter at the end of their course are considerably higher, especially for the more active and capable. The natural consequence is that the colleges must so calculate the compensation that, whenever possible, they may keep the most capable for the work of instruction, especially for the scientific work. But aside from this it is abhorrent to the American mind to pay a man for his services a sum of money on which he cannot live without additional outside sources of income. This consideration then brings it about that, in general, no great influence can be ascribed to the personal interest in his profession which the research worker or teacher feels as an impulse to high activity. This explains what by many thinkers is regarded as an obvious defect of the American system, that in American colleges is wholly lacking one part of the instructing staff found in every German university,—the German tutor, who, as a rule, gives only so much instruction as is compatible with the advancement of his own education.

With the question of pay is also connected the efficiency of the teacher. The idea is prevalent there that the younger teachers are far too much in evidence in the work of teaching and are more in demand than the younger members of the instructing staff in German universities, so that their further development is considerably endangered. This view evidently originates with the young Americans who, possibly exaggerating the strictness of the prescribed course which instructors give, look with more favor on the few self-chosen lectures which the German tutor delivers.

It is generally forgotten that the tutor and the assistant have different functions, and that the German tutor, in case he is at the same time an assistant, has in reality to devote himself much more to the instruction in the laboratory than the American instructor. At least this is the case when he conscientiously fulfils the duties of the assistant's position, and does not—in order to devote himself

to scientific work, on which his advancement depends—turn it over to younger apprentices. Of course, one can generalize too dogmatically. For the chemist, however, according to all that I have heard here and there personally or from reliable sources, this statement applies, with few exceptions. The American instructor certainly has a greater number of fixed hours of recitation, but he is paid for them so well that with a proper limitation of these recitation hours he can devote the remaining time to research work. In Germany the assistant, unless, by chance, profitable lectures are turned over to him as a tutor, must undertake, besides the services in the laboratory (which are in respect to hours, etc., less regulated) some avocation, literary or otherwise, in order to keep his head above water. Only what little time may be left over from this may be devoted to research work. For the tutor of small means, then, the progress of his development, which is of the greatest importance for his future profession, is seriously hindered.

The pay for the higher positions also seems at first sight to be high. It is to be noticed, however, that the professor receives no greater salary from the college than the German professor, who receives a part or the whole of the fees for lectures. But, even if the average pay in America is better, it must be remembered that the work is, as a general rule, more monotonous, because it is more often devoted to instruction than to research work.

Mr. Hart, who studied law in the sixties in Göttingen, in a book published in 1874, entitled "German Universities," draws a comparison between a professor in Leipzig with 500 thalers' pay and an American assistant professor with an income of $1,000 (whose salaries then stand in a ratio of 1 to 2.6):—

> The Leipzig professor has an essential advantage over his American colleague. His duties are not pressing, and they lie wholly in the line of his own study. He does not need to give twelve, fifteen, or twenty hours of instruction per week, and his time is not required for inspection and oversight of the work. His work consists in the delivery of a four to five hour lecture.

This, to be sure, cannot be taken too literally now, for conditions

have changed since then, and have become far more favorable for the American college instructor. From what experience I have had, I should judge that the professors in German universities who have charge of an "institute," or department, commonly have more demands on their time than professors in a similar position in America. Not only do the latter have control of a larger staff of sufficiently well-paid assistants on whom they can disburden themselves, but there is a tendency to-day, at least in the large colleges, toward division of labor according to inclination and fitness for teaching, especially investigation. Besides, Mr. Hart studied law, and so his conclusions do not much concern conditions existing in the scientific branches. I emphasize this here especially, because in the frequently quoted book of Professor Paulsen many conclusions are based upon statements of Hart's without any mention of that fact, which naturally weakens the force of the reasoning.

If we consider these conditions, we must, above all, not forget that educators in America know the situation thoroughly and try zealously to remove the defects. This will be best illustrated, I think, by quotation from the very significant speech of President Roosevelt in June, 1905, on Commencement Day at Harvard University.* He says in this speech, which I was able to attend, the following:—

> A university like ours has two different functions. The first is to produce a limited number of men who, endowed with the highest gifts, are in the highest sense productive in science, literature, and art. The second duty is to send into the world a great number of men who cannot perform any such functions as the first, and who should never try to do so, but whose work in the world will be valuable in many ways. These men should leave the university with an even development of body, of mind, and, above all, of character. This would fit them to fulfil a notable and important duty.

And after some remarks about the special institutions for the realizing of this purpose, which Harvard University already possesses, he said further:—

* From the Boston *Evening Transcript*, June 28, 1905.

This worthy ambition cannot be realized by one means alone, but there is one which will, in the greatest degree, contribute to the realization of it,—we must create some splendid positions and bestow them on those scholars who have attained the highest standing in their special branches. Every position of that sort ought especially to be honored, in order to show to the outside world of what importance they are.

In order that no one may give too materialistic an interpretation to these statements, the following passage is also quoted:—

Naturally, the mind of a man is incomparably more important than any reward coming from outside. The consciousness of having done such a work forms for the man who has performed it the most beautiful and richest reward. We, who stand outside, should help, as much as we can, to make the completion of this work easy. Nevertheless, what we can do is only slight in comparison with what he himself has to do. The mind of the scholar is the impelling energy for the productive work of the country.

This speech, it must also be remembered, was not an exhortation or an invitation to make contributions, but was delivered on the occasion of the presentation of the large sum of $2,400,000 to the university. In regard to the spending of this money, merely the wish was expressed that the intellectual force of Harvard University, and through it the country, might be increased by the improvement of the standing of the instructing staff. This act expresses well the spirit of sacrifice of the Harvard alumni, for a large part of that sum was contributed by old Harvard men.

Conclusions

Not all of the interesting facts have been told about America by any means; but the writing of the rest must be put off still longer unless I were willing to limit myself to hearsay. I consider it not out of place, however, to touch upon some other points, which may be important in estimating the value of the above deductions.

The first question is whether what I have said concerning the Massachusetts Institute of Technology and Harvard University will apply universally. Both institutions are highly respected, not only in America, but in other countries. Of Harvard Uni-

versity this is sufficiently known; but the younger institution, founded in 1865, in which young men are prepared for practical professions, also is frequently visited by foreigners.

In respect to general educational tendencies, I believe that I would have come to similar conclusions if I had lived at another college. I have arrived at my conclusions partly through reading essays of American educators, and not merely by reason of what I have myself seen. That must not be understood to mean that the various colleges are all the same. The whole constitution of the American colleges and the short period of their existence have brought about to-day conspicuous differences. The characteristics noted above are by no means realized in the same manner at all colleges.

Although it follows from the above that the practical value of my acquaintance with American systems is somewhat limited, as it is somewhat lacking in the necessary vouchers for its accuracy, nevertheless I may be permitted a remark concerning those institutions which appear to me to have a certain superiority over ours. This seems to me the more reasonable, since they have frequently been regarded as obsolete, useless, or impracticable.

First in importance are the yearly or term examinations. The experience gained in American colleges on this subject is, in my opinion, of the greatest importance for the future regulation of this matter. Of the practicability of the examinations there can be no doubt, and their usefulness is universally acknowledged there. We should be glad of the opportunity, if we knew how, to weed out at the right time from the great mass of students the slothful, and especially those who, with the best will in the world, cannot fulfil the minimum requirement. Several very intelligent college professors, who have studied in Germany and have taken a doctor's degree, have assured me that they considered it a great lack in our system that we do not have these examinations. If I have discussed such an institution so specifically, in spite of the disapproval at present existing in regard to it, on the supposition that the knowledge of the experiments which are being made in other places might occasion in time a change of the views held at present here, still

I do not by any means admit that the system, as a whole, is worthy of imitation. Especially do I believe that the examinations are adapted only to the preliminary years, until, that is to say, the student has given proof to himself, his guardians, and his instructors, that he is warranted in continuing his study further.

I wish, above all, to avoid the impression that, because I have made certain statements concerning schedules of studies, I am advocating the strict regulation of study. I wish to show merely how the time is divided among the various courses and with what preparation the young graduate enters his professional life. It cannot be denied that the strict regulation of studies at present prevalent in America has certain advantages: for instance, in preventing the young and inexperienced student absorbed in professional study from, in his lack of wisdom, neglecting other courses,—a neglect that occurs quite frequently, as I know from intercourse with young associates. Let us obtain these advantages through other means, especially through the effective plan of schedules of studies in which the lectures and exercises which should have a special interest for the student of a particular course are grouped together.

The great contrasts which are found in the United States are responsible for the strongly contradictory criticisms of American conditions which appear in print. The impression which a visitor to America receives depends upon the quarter of the city in which he walks, on whether he busies himself with the problems of money-making, commerce, corruption, or education, and on whether he pursues his way as a pleasure tourist with full purse and under the protection of the authorities, with influential letters of recommendation, or whether he breaks his way for himself through the difficulties. Above all, it depends on how he observes and with what degree of freedom from prejudice he regards what he sees. Among the expressions which I have heard in this respect, that of the Englishman Muirhead particularly pleased me, and occasionally surprised me also. Müirhead says (from Münsterberg, vol. ii. p. 231):—

There is something choice and delicate in the finest bloom of American

culture,—something which can hardly be found in Europe. The intellect which grows up there in a surrounding free from artificial standards and conventional distinctions gains a single-natured, unprejudiced, untrammelled, purely human view of life. It regards life calmly and as a whole. This is exactly what we fail to do in England. The true American is simply incapable of understanding the difference between a lord and a plebeian, which by the mere pressure of social conditions is forced upon every one of us. To him it is like a fourth dimension in space: one may speak of it, but it has no immediate reality. The English radical philosopher may work up to a height from which he may say, "I have won my freedom with great sacrifice," but the American may retort correctly, "I was born in a state of freedom."

And Münsterberg continues,—

But what Muirhead says of the finest blooms applies, if we look more closely, to the entire flora; for the most part not so delicate and choice (as in the best types), often suffused with raw colors, but a little of that color has been given to every growth on American soil which is not downright weed.

Although we may not be willing to accept, without qualification, Muirhead's somewhat enthusiastic idea, and especially the comparison of the English philosopher and the true American in regard to the freedom (frankly not identical) to which they have attained by such different ways, at any rate, it modifies Münsterberg's criticism concerning the whole flora. There are certain places where the spirit of cultivation pictured by Muirhead prevails. For instance, I have never visited the Boston Public Library without similar sensations. But there are also dull growths which we may not inconsiderately call weeds. Many Americans who are familiar with Germany have said, without any prompting from me, that the lower strata of the American population are not actuated by interests so worthy as in Germany.

I think that this emendation of this altogether too favorable criticism of Münsterberg's will be accepted, inasmuch as otherwise there would be a tendency to attribute the lack of legal regulation of the care of the sick and the aged, and similar duties, to a general absence of the feeling of social obligation on the part of those whose

duty it is to solve such problems. That would be too hasty, at least. It has its origin in the idea that one does not wish to curtail the right of free choice. Society makes a man responsible for his safety and existence, and pays him more highly for his work. However one-sided and consequently unjustifiable this point of view may be, it cannot be denied that it produces good results so far as concerns the individual, who becomes more independent through consciousness of his responsibility, and acquires in higher degree a wholesome feeling toward real life.

For the rest, I will not omit expressly to point out that, according to what I hear, a surprising amount is done privately to ameliorate the hard fate of those who are early worn out in this battle for existence, which destroys courage, mind, and body. It would be worth while to study the institutions of this sort more closely. We might count with certainty on finding, among the institutions which inventive and practical American men and women have created or perfected, some which could be transplanted here to the great advantage of those for whom they were designed.

Exchange of Professors

I cannot resist the opportunity to take up the much-discussed subject of exchange of professors, because I think I can offer some points of view which in many quarters do not seem to be sufficiently taken into consideration. When it became known that the realization of this undertaking was at hand, it was discussed eagerly and greeted joyfully by some, and more or less disapproved of by others. Upon the American side the joy over the recognizing of the young worker by the country of older culture prevailed, and only the occasional but sometimes quite influential man criticised the undertaking adversely. Through their statements the idea spread abroad that a nation is as independent and no more to be influenced in the development and cultivation of the intellectual capabilities of the individual man than the individual man is in respect to his character. On the German side the plan was greeted in authoritative circles with more distrust. In the first articles

published the opinion was expressed that it was not complimentary to the German universities and the members of their instructing staffs to have the American universities placed beside them as equals.

Of those men who have addressed the public in this vein, I offer the opinion of one man * who has estimated the importance of American universities according to impressions which he has received in daily work during a year's intercourse with the undergraduates as a teacher of German in American universities. This writer especially emphasises the fact that the graduates of the American universities in general possess a culture more scholastic than intellectual, a knowledge more superficial than deep, and that the ambition of the American universities is chiefly practical. In many respects I agree with the writer, but by no means in all. Especially I should not like to defend the view that the prime object of American universities should be characterized in this manner. I believe that my views concerning the difference between the purpose of the American and German educator have already been established above. And from this point of view I am convinced that the exchange of professors will have important results, not in the sense of fulfilling "weak and overstrained hopes of an international union," but to communicate to one nation the principles and experience of the other in matters of education. The result is that the men who decide the fate of a nation in respect to the development and cultivation of methods of education become acquainted with the differences in the underlying conceptions and results. Since, as has just been shown, the leading principles depart pretty far from each other, inasmuch as educators in Germany at the university give their aid chiefly to the development of the best scholars, whereas in America emphasis is laid upon the raising of the general middle class, it is only right to expect that the consideration of the experiments which are being made in America may be of the greatest importance.

It must be admitted that the mutual sharing of experiences may

* Walther Kuchler, "Ueber Amerikanische Universitätsbildung. Eindrucke und Erwagungen." (Beilage zur Münchener Allgem. Zeitung, Nr. 172 (1905), s. 185–189.)

take place in other ways than official ones: for example, through German teachers who work in America and, on the other hand, through American students who study in Germany. But since at present the information concerning American conditions is chiefly obtained through philologists (teachers of the German language), who naturally are not in a position to judge with the eye of an expert the conduct of the scientific courses, which in the last decade in America have been perfected to a remarkable degree, we must expect most certainly that the visit to America of older men belonging to the most widely separated branches will be of great influence upon the development of instruction in German universities. These men will be aided in their criticism by their authoritative position, which will procure for their views a readier hearing than is accorded to younger men who have taken up the task unofficially.

We must not set our hopes too high, of course, and refuse to realize that not all imperfections of an educational system can be corrected as soon as this or that experiment is tried. Many devices and arrangements will be borrowed from there, especially in laboratory instruction. If we may not rate these things very highly, yet at least we should not undervalue them. Let us consider, for instance, the ease with which in America literary treasures are made accessible to the public. It seems to me unjust to believe, as the above-mentioned writer plainly does, that in this way superficiality of knowledge is favored at the cost of depth. That may be true in some cases, but it does not, as a rule, apply. Superficiality of knowledge is found there more frequently not, in my opinion, because it is easier to make up for lack of knowledge by private study in the library, but because the accessibility of the libraries is not in itself sufficient to prevent the evils due to other circumstances.

Although, as might be supposed from the above, I expect much profit to arise from the visit of the German professors to America, nevertheless I cannot agree with the views of Professor Münsterberg on this subject. This scholar states on page 122 of Volume II. of his much-mentioned book, after he has spoken of the results

in education which may arise from the fact that the sons of rich Americans may devote themselves to it:—

Germany knows little of all this: people live in the traditions of twenty years ago, and in our times how quickly conditions change. American books go unnoticed, American reviews go in ridiculously small numbers across the ocean. Americans are constantly complaining that even in the great Berlin library many of the most important American works and magazines are wanting; and, "if they do these things in the green tree, how shall it be done in the dry?" That such things cannot happen without serious harm to German knowledge is evident.

With respect to the American students who go to Germany, he says

that they make use of the freedom of the German lecture-room for the most part because they cannot obtain admission to the leading American colleges. The better part, however, who, having had a good preparation, exchange their American college for a German one for a few semesters, do not go to-day as they did thirty years ago with the feeling that Germany is the schoolmaster of the world, and that they will find there something of a different quality from the home instruction. They go there to widen their horizon as cultivated men or in order to take special studies with some expert; they seek a gain which the German would also if he spent one year in the graduate school of Harvard or Columbia, Chicago or Johns Hopkins.

And, toward the end of this chapter on education, he finally utters this warning:—

Once more let it be said that, if the German prejudices are not soon corrected, their surprise over the American success in the province of the intellectual will be still greater than that over their economic growth.

The narrowness of this view is so apparent that I will refrain from any discussion of it. In one point, however, I agree with the writer with complete conviction, although from other motives; namely, in the warning that we also, the younger generation, should go abroad and study American conditions with our own eyes. Whoever does that will not only gain the profit that comes from close contact with a people distinguished by inexhaustible energy and

natural intelligence, and holding fast with undeviating confidence to the broad-minded national ideals of the best of their ancestors, and yet possessing in the choice of ways and means the most surprising flexibility. He will also gain through looking at the country where he was born from a somewhat greater distance. He will see many things which have no moral right to exist, and which totter along with difficulty, supported on the weak arm of Old Custom. He will also learn, for the first time, to know and to value correctly the worth and strength of his native country's institutions, and will realize what is imperishable in them. And there will awake in him the hearty wish to help in the discarding of the outworn, and to devote his strength to the service of his fatherland.

[illegible] WEEK

[illegible] CONCERT AND DANCE

The [illegible] Glee, Banjo, and Mandolin Clubs gave their annual spring concert and dance at the New Century Building on the evening of April 24. The matrons were Mrs. Harrison W. [illegible], Mrs. Frank H. Rand, and Mrs. Peter Schwamb. Over three hundred persons enjoyed an excellent program, more than two-thirds of this number attending the dance.

TECH SHOW

"William, Willie, and Bill," the ninth annual Tech Show, was performed at the Colonial Theatre, Boston, on the afternoons of April 26 and 27, at the Malden Auditorium on the evening of April 27, and at the Providence Opera House on the evening of April 28. The performances were noteworthy for the crowded houses, the best which Tech Show has ever experienced.

The Boston performances were marked by the presence of a large number of Wellesley girls in the second balcony.

A new Tech cheer song, "Dear Old M. I. T.," was produced, and immediately won its way into the hearts of all Tech men. The songs and dances throughout the performances were excellent, and set a high standard for other shows to follow. The play did not have much of a plot, just enough to hold the songs together.

The following criticism by Professor Seaver, of the Department of English, is so excellent and suggestive that the REVIEW ventures to reprint it from *The Tech*, where it first appeared:—

It is probably required of any critic who has seen Tech shows through a number of years that he compare with previous performances that of the current year, fresh and pleasant as it still is in his mind, without any timid concern for possible odiousness in his comparison. Fortunately, the

standard of the show is now fixed so high that each year's piece is good, and such comparison usually indicates difference rather than superiority or inferiority.

The merit of the show this year is mainly, I think, an unusual evenness of excellence,—an attainment to be credited rather to the management and to the undistinguished sincerity in the work of each performer than to exceptional gifts in a few prominent players. The music is of sustained interest, without numbers separately as catchy or brilliant as some of previous years. Similarly, the singing of Ellis, Jenkins, and Orchard is less conspicuously superior to other solos or to the choruses than were the solo parts of other shows. No previous show that I have seen was so sure in the memorizing of parts and the adjustment of the action, so that the two acts passed without song or dialogue broken, without mishap or collision in any dance, and without hitch or lapse of enthusiasm and control. Technical detail so small as the clapping accompaniment to the "Cattle King" song or the sounding of the tambourines in the tambourine dance was noticeable for precision, a sufficiently modest virtue, but attainable among large numbers only by work and capable training. The single adverse criticism that occurs to me is that too many words were lost by hurried delivery in the dialogue and obscure enunciation in the songs.

Of acting in the sense of impersonation of character, nothing was demanded by the libretto. In the way of caricature and personal "stunts," the honors seem to me pretty surely to belong to Coffin's serenade and dance, the coon song for which was, I think, the most original and best musical composition, and to Kibbey's whole performance of "Goldstein," especially the dance, which, alone among the individual numbers, seemed to me to equal the best work of any previous show, and which was indeed a most effective combination, kept within the limit of extravagance, of agility, ingenuity, and absurdity. This detail suggests again comment on the general excellence of the piece, that it was free from any of the excessive and, consequently, merely grotesque "stunts" that have marred some previous shows.

I have left for the end consideration of the libretto, because recent experiments in the librettos have been so interesting. I still believe that no Tech show has yet availed itself of the possibilities of comic effect in the plot. Any attempt completely to convert the show into a regular play would be fatally objectionable, because it would exclude all the possibilities of chorus and figure dancing, and would demand too much time and aptitude from a few performers, and so destroy the main virtue of the show, that demo-

cratic inclusiveness which means a good time for the whole student body, fairly secure from complication with Faculty votes. The loss resulting from omission of chorus dancing has been evident in the last two shows, which have contained no effects of rhythmic movement and beautiful grouping and coloring of costume comparable with the chorus costume dances of four or five years ago. But, without any sacrifice of these effective features, it should be possible to make the plot contribute to the fun, and so become more than a thread, tangled and ravelled and even broken, on which to string the separate numbers. In the present show, individuals *do* very clever and amusing things, but nothing amusing *happens*. An omission I personally miss much is a more definite love story and love scenes, for nothing can be so diverting as a fellow's impersonation of femininity. Coquetry combined with the astounding and abysmal voices that accompany female costume in a Tech show, coquetry reliant on such charm of person as that of the black-gowned beauties of this show, those with the bare shoulders of the Farnese Hercules, is ludicrous in a way and to a degree unapproached by the professional comic stage. Further, there are, I think, opportunities quite unrealized by Tech shows of making the plot itself have satirical local appropriateness, by bringing the scene nearer home and connecting the episodes more immediately with Tech life.

A last objection is probably quite as much a compliment. The audience would enjoy more "local hits." Some have demurred lest the fun become unintelligible to all outside Tech, but the audience is all Tech, and there is no necessity of appeal to a public outside that personal one which enjoys in the shows most of all the flavor of personal pleasantry. H. L. S.

"TECHNIQUE 1908"

Technique rush on Thursday noon, April 25, was one of the fiercest ever known. The editors had only one hundred books ready for distribution, and three hundred men went into the rush to get them. E. R. Smith, '08, secured the first book.

Technique '08, more than maintains the standard set by previous books. The volume is larger, with more reading matter, although some information which has appeared in previous editions as a matter of course, has been cut out. The art work and grinds are far above those of previous years, and the class histories, notably those of 1908 and 1909, unique.

JUNIOR PROM

The annual Junior Prom was given at the Hotel Somerset on Thursday evening, April 25. The committee planned and handled the dance in remarkably fine fashion, there being present nearly two hundred and fifty couples,—a number larger than in previous years.

W. FRED DOLKE, JR., '08.

SENIOR WEEK

Senior Week, 1907, will undoubtedly go down into the history of the Institute as a lively and most pleasant week. Beginning with the annual Senior Class Dinner at the American House on Thursday evening, May 30, the graduating class celebrated its entrance into the world's work, and was welcomed into the Alumni Association. The program for the week was: Thursday, May 30, Senior Class Dinner, American House; Friday, May 31, Alumni Reception to Seniors, Engineering Buildings; Saturday, June 1, Musical Clubs, Concert to the Seniors; Sunday, June 2, Baccalaureate Sermon, Trinity Church; Monday, June 3, Class Day Exercises and Senior Dance; Tuesday, June 4, Graduation Exercises, Class Reunions, and Tech Night at the Pops.

SENIOR DINNER

The Senior Dinner on Thursday evening, May 30, at the American House, was a successful beginning of Senior Week. It had been expected that the graduation announcements would be distributed before the dinner began, but the Faculty meeting did not conclude until after 10 P.M., so that it was 11.30 P.M. before Professor Merrill and Mr. Humphreys arrived.

The dinner went off smoothly to the accompaniment of much singing and shouting. The suppressed nervousness and the anxiety of the candidates for graduation naturally found vent in a good-natured, pleasant rough-house.

Everett Morss, '85, president of the Alumni Association, James P. Munroe, '82, and Bursar Rand were the speakers, making a strong appeal to the graduates to hold together as a class and to help the secretary, A. Macomber, to keep in touch with the men. Advice was plentifully supplied by the speakers, and received with much applause. After the regular features of the dinner were concluded, the meeting broke up, the men wandering around the hotel waiting for the arrival of the graduation announcements.

More or less of a good-natured rough-house was kept up until Professor Merrill and Mr. Humphreys arrived. When the men had finally passed in front of the Secretary, and had received their announcements, bedlam of the worst kind broke out. All of the men went to pieces, and the noise and clamor were deafening. After each man had shaken hands with each of the others, and had pounded every one else on the back, all the time yelling at the top of his voice, the whole class rushed into the street, formed a column of fours, and marched up to Rogers Steps for the last cheering and singing.

ALUMNI RECEPTION

Following closely the standard of a good time set by the Senior Dinner the evening before, the alumni reception to the graduating class on Friday evening was greatly enjoyed by the large number present. The Senior stunt was sprung as the first event of the evening. Under the command of Captain H. S. Wonson, '07, two companies of soldiers, dressed in uniforms that varied from the "dinky" dress of Freshman days to gunny-sacks, went through a short travesty on a battalion drill. The music was furnished by a makeshift band that made noise, but little harmony.

James P. Munroe, '82, represented both the class of 1882, which was celebrating its twenty-fifth anniversary, and also the Corporation in his talk to the Seniors. A. L. Plimpton, '77, Giles Taintor, '87, and A. W. Jackson, '97, represented their classes in bestowing advice and gifts upon the graduates. While the refreshments were being served, Coffin, '07, and Kibbey, '09, entertained those present with their selections from this year's Tech Show, "William, Willie, and Bill," and G. R. Norton, '07, gave several well-rendered selections on the cornet.

MUSICAL CLUBS CONCERT

On Saturday evening the combined Glee, Banjo, and Mandolin Clubs gave a concert in Huntington Hall to a large and appreciative audience of Seniors and their friends. The clubs gave an excellent program and did the best work of the year. The program consisted

practically of the same numbers that were presented at the Spring Concert, but was given with a much better vim and feeling that captured the audience. The soloists were Thompson, '09, with his 'cello, A. Killion, in a vocal selection, and Fales, '07, and L. J. Killion, '05, in a banjo duet.

BACCALAUREATE SERMON

The Rev. Dr. Elwood Worcester, of the Emmanuel Church, preached the baccalaureate sermon on Sunday afternoon in Trinity Church, speaking in part as follows:—

One of the most striking signs of our times is the labor it imposes on youth. Certainly, the most significant spiritual fact in the past fifty years of our history is the development of that vast, graduated, complex system of education whose sole purpose is to train the minds and characters of the young. For this end no sacrifice is too great, no legitimate undertaking too costly. For this end our government, which ordinarily takes a somewhat parsimonious view of its duties to individuals, pours out its treasures like water. To this sacred cause come the princely gifts of individuals. The necessity of education is the one appeal that is never made in vain.

The years of pupilage have lengthened, and the tasks devolving upon early life have grown heavier. We see signs of this everywhere, in the tendency of all good colleges to raise their standards of admission, to lengthen their courses, and to shorten their vacations. In short, the tendency of the times, not only in our land, but in all civilized lands, is to lengthen the period of youth and to fill those years with hard labor.

The chance to lead a distinguished life only by virtue of good manners, wit, and the traditions of a good family, has practically disappeared, and, in place of these charming accomplishments, useful knowledge and capacity for hard work are the avenues to distinction.

I have read with interest the charge made by some of our most successful business men that the people of this country are over-educated. They say, Educate the poor, and the poverty of which before they were hardly conscious becomes an oppressive burden. It is all true. The simple are undoubtedly the happiest. To find real felicity, we must descend to the animal kingdom, and there the happiest animal is the oyster safely ensconced between his two shells. As for the man, he is never so blessed or so innocently employed as when he is sound asleep.

Without making any reflection on this college or any other college, you will find the great world in which men and women live is a more moral place than the little world of college. There are two reasons why college morality falls below the morality of the remainder of the world at the present time. First, college life makes few demands upon our moral nature. It is too exclusively intellectual, too selfish. When you have learned the meaning of unselfish love, when you spend your days working for others, when, instead of being adorned like the lilies of the field, you are agreeably surprised to find yourself with a new suit of clothes once or twice a year, you will begin to know what virtue is.

The second reason is that Christian morality, the only morality worth talking about in our part of the world, is not received well by the institutions of learning. To tell the truth, the college professor has never known exactly what to make of Christianity, for the reason that Christianity is a religion of life, not a system of ideas which the professor can take to pieces and put together again.

There is one illusion that is dangerous. It is that life is long. On the contrary, it is very short, therefore make haste. What thou dost, do quickly.

In closing, I would say to you: "Be honorable, believe that life is good, and love your country."

CLASS DAY

Inclement weather not only cut down the attendance at the Class Day exercises on Monday afternoon, but also forced the graduates to hold their spread indoors. The officers and speakers were John H. Leavell, first marshal; Donald G. Robbins, historian and statistician; Earle F. Whitney, class prophet; John M. Frank, presentation orator; and Hudson B. Hastings, orator. The statistics were presented in the form of a thesis, entitled "An Investigation and Determination of the Actions and Reactions of the Class of 1907 and Certain Other Reagents." The class prophecy was presented as the log of the pirate ship "1907," the entries all being made in regular sailor language. President Lawrence Allen, '07, presented the class gift, 150 copies of the new edition of the Tech Songs, to the Union. In the evening the Seniors held the annual senior dance at Copley Hall.

GRADUATION EXERCISES

With the same simple impressiveness that has marked the graduation exercises at Technology in the past, the commencement exercises were held in Huntington Hall Tuesday afternoon. For the first time in the history of the Institute the degree of Doctor of Philosophy was conferred, three men getting this degree as the result of their work in the research laboratory of the Institute. After the reading of abstracts of theses, President Pritchett addressed the graduates as follows:—

You who are here as candidates for graduation to-day are the survivors of a much larger number who entered four years ago, and you have now come to the last official act in which the Institute deals with you as students. From this hour you are graduates, and have begun that life which is not separate from the college life, but a continuation of it in the larger world.

In conferring upon you the degrees which are to follow, I can do no more than to commend to you the underlying principles of the Institute with which you have been familiar during your four years of study. Energy, devotion, readiness to work hard and efficiently, service to your fellow-men, these are the things which you have heard in the school life, and these are the fundamental qualities which you are to cultivate in the larger life.

I hope that you may carry with you a high sense of obligation to the college which sends you out. The Institute of Technology has just come to that period in its history when it must look more and more to its graduates for support, for encouragement, for guidance. Its governing board has come to be composed in a large measure of graduates, and each student who goes out should realize with increasing distinctness the fact that the Institute looks to him in the future as one of its sustainers.

We are celebrating this year in America the three hundredth anniversary of the establishment of the first English colony at Jamestown. The occasion has served to freshen our memories of the perils and difficulties of those early days, and it has served, furthermore, to emphasize those qualities of courage and patience and endurance which made it possible for the little colony to live through those first ten years of life on Jamestown Island.

Amongst all those who wrought in laying what has proved to be the foundations of a great nation, there was no figure more heroic than that of the simple, earnest, resourceful soldier, John Smith, and I have thought that on this day, when we celebrate the anniversary of this settlement, I can

do no better than to leave with you one of the sentiments which Smith himself wrote as expressing his own idea of what was worth doing in the world.

"What truly suits with honor and honesty," writes he," as the discovering things unknown, erecting towns, peopling countries, informing the ignorant, reforming things unjust, teaching virtue and gain to our native mother country." I venture to commend these words of a simple and noble soul to you who go out to-day to serve our native mother country, you who are to discover things unknown, who are to erect towns, who are to help in the informing of the ignorant, and who will, I hope, bear a full part in reforming things unjust.

The problem of the world to-day is not materially different from that of three hundred years ago. Great progress has been made in all that has to do with our ideals of citizenship and of service, but the same old evils have to be dealt with, and, to meet them, we need men of the same manly virtue as were called for in the days of 1607.

Let me add just one other word. A deal has been said of late years concerning the conceit of college graduates, and able editors have found it a fruitful source of humor since the day when Horace Greeley alluded to them as "horned cattle." Unfortunately, it is only too true that conceit is common to a large part of the human race: it sometimes exists even among practical business men themselves. A young man who has the right stuff in him usually gets over this sort of thing, whether he is a college graduate or not.

There is just this much of truth in the statement that many men get the idea that a college education will enable a young man to start in a business or in an organization higher than the man who has not. This is not true. The college graduate starts at the bottom just as the man starts who has not a college education; but, if the college man's education does not enable him to out-distance his competitor, then there is something the matter, either with the education he has received or with himself, or with both.

Your Alma Mater counts that those of you who leave her house to-day are to do your full part in the discovering of things unknown, in the erecting of towns, and in the reforming of things unjust. She looks to you to furnish not only service, but leadership; but she reminds you, on this day of parting, that leadership comes only through service, that he who will learn to direct others must first learn to discipline himself, that he who will administer the affairs of a corporation, or a state, or of a nation, must first administer well the business of his own life.

The rewards of high administrative place will, in the long run, fall to him who adds to honesty, intelligence, and energy loyalty and self-discipline. The road to leadership, whether it lies in one field or another, whether in the constructive work of discovery, of erecting towns, of peopling continents, or whether in the critical work of reforming things unjust, is to be found through service and self-discipline. He who will command must first learn to serve.

He then, on behalf of the Corporation, presented diplomas of graduation as follows:—

DOCTORS OF PHILOSOPHY

Raymond Haskell, Robert Browning Sosman, Morris Archer Stewart.

MASTERS OF SCIENCE

Albert Alden Blodgett, George Holbrook Buckingham, Edmund Schureman Campbell, Colby Dill, Charles Willis Fisher, Jr., Edward Chambers Hamner, Jr., Fitch Harrison Haskell, Ralph Templeton Cushman Jackson, Emory Scott Land, James Reed, Jr., Holden Chester Richardson, John Henry Walsh, John Williams Woodruff, John Timothy Wrinkle, Isaac Irving Yates.

BACHELORS OF SCIENCE

Civil Engineering.—Charles Everett Allen, Lawrence Allen, James Perrie Alvey, Jr., Henry Bissell Alvord, James Madison Barker, Charles Willett Beam, Attilo Horace Cenedella, Howard Root Chase, Raymond Francis Conron, Everett Russell Cowen, George Arthur Crane, Allen Reginald Cullimore, Thomas Francis Dorsey, Harold Phillips Farrington, James Ernest Garratt, George Appleton Griffin, Harry Rutledge Hall, Hudson Bridge Hastings, Clarence Decatur Howe, John Frederick Johnston, Jr., John Kimball, Edward Guild Lee, Harold Clifton Libby, Henry Delano Loring, Benjamin Franklin Mills, Fred William Morrill, Emory Chase Noyes, William Watters Pagon, Willis Ranney, Thomas Walton Roby, Jr., Ray Elmer Shedd, Phelps Nash Swett, Edmund Abiel Thornton, Frank Ryland van der Stucken, Willis Gersham Waldo, Elbert Carson Wilson, Arthur Melvin Winslow.

Mechanical Engineering.—Anthony Brown Arnold, John Mullin Baker, Edgar Maurice Berliner, William Walter Bigelow, Clarence Allen Bowen, Leverett Howell Cutten, Clayton Rhay Denmark, Victor Heyle Dickson, Parker Van Patten Dodge, Charles Albert Eton, Ernest Cleveland Evans, Otis Gerry Fales, John Hibbard Fellows, Louis Arthur Freedman, Jesse Warren Hanford, Arthur Rowney Jealous, Edward Francis Kelly, Robert Eugene Keyes, Rudolf Heinrick Kudlick, Antoine Gilbert Labbé, Joseph Thomas Lawton, Jr., Milton Turnley Lightner, Byron Peaks Luce, William Sylvester Lucy, John Theodore Mahar, Anthony Paul Mathesius, Nathan Atherton Middleton, Addison Miller, Stuart Read Miller, Kenneth Moller, John Seymour Nicholl, Bryant Nichols, George Roswell Norton, Charles Warren Nutter, Allen Pope, Marcellus Rambo, John Ralph Randall, Everett Rich, Edwin Cole Richardson, Franklin Ripley, Jr., Donald Goodrich Robbins, Selden Emmett Rockwell, De Witt Clinton Ruff, Gilbert Small, Edwin Bertrand Snow, Jr., Edmund Hincks Squire, Herbert Arthur Terrell, Robert Ellis Thayer, John Joseph Thomas, Paul Baron Webber, Laurence Wetmore, Harold Street Wilkinson.

Mining Engineering and Metallurgy.—John Gerald Barry, John Patten Chadwick, Joseph Samuel Coupal, John Allen Davis, Lawrence Ritchie Davis, Albert Henry Donnewald, Harold Stephen Duncan, Shepard Gilbert Emilio, Harry Allen Frame, Henry Bartlett Hallowell, Warren Hastings, Charles Morton Hutchins, Frederick Constant Jaccard, John Charles Kinnear, John Holland Leavell, Howard Jeremiah Coombs MacDonald, John Milton McMillin, Eugene Phelps, Vernon Stone Rood, Roswell Eustis Sampson, Albert Edward Wiggin, Roland Howard Willcomb.

Architecture.—Franklin Oliver Adams, Jr., Cecil Franklin Baker, Edwin Witthaus Bonta, William Balch Coffin, Paul Lander Cumings, Maude Frances Darling, Frederick Greiman Dempwolf, John Tiernan Fallon, Warren Austin Gates, Edward William Hamill, Ernest Farnum Lewis, Samuel Abraham Marx, James Gates Moore, Floyd A. Naramore, William Graves Perry, Earl Howell Reed, Jr., Winsor Soule, Oscar Henry Starkweather, Herbert Arthur Sullwold, Samuel Rogers Taylor Very, Ephram Stanley Wires.

Chemistry.—Albert Lewis Burwell, Roger David Gale, Walter Brayton Gonder, John Hanger Link, Herman William Mahr, Frederick Taft Moses, Donald Edwin Russ, Frank Brown Shields, William Samuel Wilson, Richard George Woodbridge, Jr.

Electrical Engineering.—Arthur Howard Abbott, Rutherford Bingham, Lester Wellington Brock, Emory Leon Chaffee, James A. Correll, Ralph Haskell Crosby, Carroll Sisson Dean, John Evans, John Mayer Frank, Roy Fellows Gale, James Mason Gaylord, Phil Prescott Greenwood, Ralph Groton Hudson, Thomas Callender Keeling, Philip Francis Kennedy, Ralph Frank Knight, Howard Hazen McChesney, Alexander Macomber, Albert Preston Mansfield, John Ernest Moore, Prescott Raymonds Nichols, Hugh Girard Pastosiza, Maurice Henry Pease, Leonard Pomeroy Russell, Tracy Smith, Frank Clifford Stockwell, John Ewart Tresnon, Everett Esten Turkington, Claude Vernon Turner, Arthur Kellam Tylee, Erle Francis Whitney, Joseph Damon Whittemore.

Physics.—John Clement Bradley, Albert Edwards Greene, Frank Sanderson MacGregor, Milton Emery MacGregor, Merton Wilfred Sage.

Chemical Engineering.—William Henry Bradshaw, Charles Ridgaway Bragdon, Harry Newton Burhams, Kirk Worrell Dyer, Martin Herbert Eisenhart, Cornelius Simmons Fleming, Jr., Harold Avery Kinsbury, Roy Wallace Lindsay, Harry Lawrence Moody, Emerson Heard Packard, Octavus Libbey Peabody, Herbert Gay Spear, Sidney Deeds Wells, William Lysander Woodward.

Sanitary Engineering.—Grandville Reynard Jones, Carroll Fitch Story, Leslie Clifford Whittemore,

Geology.—Mildred Eleanor Blodgett, Marden Warner Haywood.

Naval Architecture.—Frederick Bachmann, Walter Bicknell Cain, Charles Matthew Curl, Seymour Joseph Egan, Arthur Harold Jansson, Dan Austin Loomis, Winslow Davis Robinson, Benjamin Karl Sharp, Raymond Ware, Harold Sayward Wonson.

TECH NIGHT AT THE POPS

The tenth annual Tech Night at the Pop was more boisterous than any former one, the Freshmen and Sophomores just escaping

a sharp class fight in their scramble for some '02 handbills. Otherwise the celebration was the usual "grand and glorious wind-up" of the college year. The undergraduates rushed the professors up and down the aisle, while the older graduates had a competition to see which banner could be raised the highest, '97 seemingly winning out.

W. Fred Dolke, Jr., '08.

TESTS ON THE S.S. "GOVERNOR COBB"

The S.S. "Governor Cobb" was built for the Eastern Steamship Company to run from Boston to St. John, N.B., touching at Portland, Eastport, and Quebec. The length is 300 feet, the beam 51 feet, and the draught 14 feet; the displacement is about 3,500 tons; and with 4,500 horse-power the speed is about 17½ knots per hour. There is a very large passenger accommodation, and freight is carried in the hold and on the main deck.

The design was by the W. and A. Fletcher Company of Hoboken, N.J., who furnished the propelling machinery. The hull was built by the Delaware River Iron Ship-building and Engineering Works, Chester, Pa. The ship is propelled by turbines of the Parsons type, and is the first of that class to be put into service in America.

Through the kindness of Mr. Calvin Austin, president of the Eastern Steamship Company, arrangements were made to have a complete test of the propelling machinery by the Department of Naval Architecture. The details of the arrangement were made under the authority of Mr. Hanscom, assistant to the president. The work was done at the Atlantic Works, under the supervision of Mr. Monteagle. Instructions were given the engineer staff to give the Institute every facility in carrying out the work of preparing for and making the tests; and these instructions were fulfilled most cordially by Mr. Richards and his assistants.

The plan for the tests was prepared and carried out by Professor Leland with the assistance of Mr. Everett. Commander C. B. Bryan, U.S.N., from the Bureau of Steam Engineering, accompanied the party during the tests. Messrs. W. D. Robinson, H. S. Wonson, and D. A. Loomis from the graduating class completed the party. The first two took the observations in the engine-room as the basis of their graduation thesis, and the last took the observation in the boiler-room for the same purpose.

In the boiler-room are six single-ended Scotch boilers, working under about 150 pounds' pressure with forced draft, which require

no special description. But the engine-room presented an entirely different appearance from that of the customary triple expansion engine. Lying low down near the ship's bottom are three drums or cylinders lagged and covered with Russia iron, about 4 and 6 feet in external diameter and 15 feet long. These are the turbines. To these lead certain steam-pipes, and connections are made with the condensers. From them three slender shafts are carried aft and through the skin of the ship at the stern, and carry the three high-speed screw-propellers. When the top half of one of the casings of a turbine is lifted, there are revealed rows upon rows of little brass blades, most of them no bigger than the blade of a penknife. Even after one has familiarized himself with the theory of the steam turbine, it is difficult for the mind to correlate one of those insignificant blades with the propulsion of a great ship. But there are thousands upon thousands of them, each doings its share and making up in speed what it lacks in size.

Of the three drums, the centre one is the high-pressure turbine, which takes steam from the boiler and expands it down to 20 pounds. The steam then passes to the two outer low-pressure turbines, where it is expanded to a vacuum of 28 inches of mercury and delivered to the two surface condensers. At the after ends of the low-pressure turbines are two small backing turbines enclosed in the same casing. In manœuvring, steam may be supplied directly to either of the wing turbines to drive ahead or to back. When the ship is under way, the manœuvring valves are shut, and steam is turned on, under full pressure, to the high-pressure turbine only.

Since there is manifestly no way comparable to indicating an engine, of determining the power developed by the steam, it becomes necessary to determine the power delivered by the turbine to the propeller shafts. Fortunately, the torque on the propeller shafts is uniform, and may be determined by measuring the angle of torsion of those shafts. This is no new problem, for in making tests on repeated stresses in revolving shafts in the Engineering Laboratories of the Institute it has long been customary to measure the torque in the shafts by electrical methods. Two methods have been devised and successfully applied by students in the Department of

Naval Architecture for measuring the fluctuating torque in the shaft of a triple-expansion engine, and are reported in their gradution theses. One of these methods depended on photography, and the other on electrical perforation of paper on the engine shaft. Both had the inconvenience that the value of the results could not be determined during the test.

The most practical instrument for measuring torque in the shaft of a steam turbine appears to be the Denny-Johnson torsion meter developed at the Leven Shipyard, Dumbarton, Scotland. Under favorable conditions it can be made to give all the accuracy necessary or possible in practice, and appears to be distinctly superior in this respect to the steam-engine indicator. And, what is of even more advantage, the readings of the instrument, multiplied by a predetermined factor and by the revolutions per minute, give at once the horse-power developed. The essential feature of the instrument is a pair of sharp-edged bar-magnets that excite electric action as the shaft revolves. One magnet is placed in a wheel near the forward end of the shaft, and the other in another wheel as far aft as convenient. Fixed to the framing of the ship near each wheel is an inductor in which is a series of flat coils of wire arranged in radial planes. When the shaft is at rest, the magnets and inductors are set so that each magnet is at the zero mark on its inductor. When the ship is under way, the shaft is twisted so that, when the forward magnet is at its zero mark, the after magnet is in the plane of a coil at a definite angle from the zero of the inductor. By a proper lead of wires in a cable, electric connection can be made between the coils opposite which the two magnets may be at any instant, and, as the winding is such as to produce currents in opposite directions, the currents can be made to neutralize each other when the instrument is in proper adjustment. A switch-box allows the observer to find by trial the coils that give the proper neutralization, which can be detected by listening in a telephone receiver. When the instrument is so set as to give imperfect concordance, there is a ticking in the receiver which decreases as the switch is shifted from coil to coil till, when the proper setting is found, it nearly, if not entirely, disappears. The coils are set one-

fiftieth of an inch apart in an inductor, and, since the concordance can be found either at one plug or the next of the switch-box, or half-way between, hundredths of an inch of displacement along the arc of the inductor can be estimated. The range of the inductor is an inch and a quarter, and on the "Governor Cobb" a torsion of about three-quarters of an inch was obtained, so that the instrumental error was not quite two per cent. By a double switch system, with coarse and fine readings, it has been found possible to get the proper electrical connections with a cable of sixteen wires. There are other details for convenience in setting and reading the instrument which would be tedious if recited here.

The only instruments of this make in the country at the present time are those ordered by the Navy Department for the scout cruisers "Chester" and "Salem," building at the Bath Iron Works and at the Fore River Company's yard. Through the courtesy of Admiral C. E. Rae, U.S.N., engineer-in-chief, the Institute was able to borrow the set ordered for the "Chester" on the condition that we should first set up the instrument in our laboratory and calibrate it. This was done, and Commander Bryan brought a group of young naval officers, under special instruction in steam-engineering, to observe the action of the instrument.

Through the generosity of two friends of the Institute it has been possible to place an order for a set of the Denny-Johnson torsion-meter for the Department of Naval Architecture, and we have assurance that we shall be able to give students in that department practical experience in the use of the instrument at sea.

This feature of the test has been dwelt upon because it is novel. The other items are no less important. Thus, the steam consumption of the propelling machinery was determined by measuring the water drawn from the condenser, with a Hersey water meter. The Hersey Manufacturing Company not only lent a four-inch hot-water meter free of charge, but, not having a meter of that size in stock, they manufactured one for our use, on a rush order, exhibiting much solicitude lest they should not get it ready in season.

The Crosby Gage and Valve Company lent us gages and other instruments without charge, in their usual courteous manner.

The steam used by the auxiliary machinery and for heating was determined by flowing it through orifices placed in the auxiliary supply pipes, so that the steam to be properly charged against the turbine could be determined.

The coal consumption was determined by counting the buckets brought from the bunkers, and as the coal was uniform in size and condition, and as individual bucketfuls were weighed from time to time, this item was determined with sufficient exactness.

The speed of the ship was determined by aid of an electric taffrail-log belonging to the department, which was tested just before the trials by towing it over a measured mile in Boston Harbor. For this purpose Police Commissioner O'Meara gave us permission to use the police boat "Guardian." This log differs from the ordinary taffrail-log in that the line to the log does not turn, but that line carries wires forming an electric circuit actuating a counter on board, so that comparatively small distances can be determined satisfactorily after the error of the instrument has been determined. After leaving Boston, the ship was run at about half-speed, and at two intermediate speeds as well as a full speed, so that all the necessary observations were made for a progressive speed trial.

All the instruments and apparatus used during the tests were standardized before or after the tests, and preliminary results have been computed, part of them appearing in theses, as already said. It is expected that a complete technical report of the tests will be communicated to some scientific society, but it was thought that the conditions and extent of the investigations would be of interest to readers of the REVIEW.

CECIL H. PEABODY, '77.

GENERAL INSTITUTE NEWS

THE CORPORATION

At the regular meeting of May 31, the Corporation granted degrees to three Doctors of Philosophy, fourteen Masters of Science, and two hundred and eight Bachelors of Science, as noted elsewhere in the REVIEW. They confirmed various appointments and promotions, also given elsewhere, made by the Executive Committee, and listened to the reading of reports from several Visiting Committees. In the absence of Dr. Pritchett, Mr. William Endicott presided.

The Executive Committee has accepted the resignation of Dr. Henry S. Pritchett as president, to take effect not later than July 1. Professor Arthur A. Noyes, '86, Chairman of the Faculty, has been appointed acting president.

By the will of the late Alexander S. Wheeler, for so many years a devoted member of the Corporation and of its Executive Committee, the Institute receives $5,000.

THE FACULTY

REPORT OF THE COMMITTEE ON ORGANIZATION

At the Faculty meeting of May 23, 1906, a special committee of ten members, known as the Committee on Faculty Organization, was appointed to consider and report upon the desirability of modifying the organization of the Faculty and of making changes in some of the methods of conducting Faculty business, and to this committee was referred a memorandum in regard to these matters presented to the Faculty by the President. A report was presented by the Committee on Feb. 6, 1907; and this was adopted by the Faculty on April 17, 1907, in a somewhat amended form, substantially as follows:—

With reference to the general principles involved it is the opinion of the Faculty:—

(1) That it is advisable that the Faculty, as a whole, continue to deal with questions of educational policy.

(2) That it is advisable that the Faculty, through its officers and committees, continue to carry on the work of administration, consultation, and correspondence, so far as these are connected with the studies, the registration, and the records of students.

(3) That it is advisable that the administrative work of the Faculty continue to be carried on by its officers and by its various standing committees rather than by a single administrative board or council chosen by the Faculty.

(4) That it is advisable that the Faculty meetings be relieved from certain business which can advantageously be transacted by committees, and that more definite provision be made for the preparation and presentation to the Faculty itself of matters which should receive its consideration.

(5) That it is advisable that in each term two or more conferences of the instructing staff of the respective departments be held for the discussion of matters of departmental policy and the improvement of methods of instruction, in order that interest and initiative may be developed in the instructing staff as a whole, and that a definite and recognized influence in matters of policy may be more generally exercised.

(6) That the Faculty, in response to the suggestion made by the President, express its appreciation of the desirability of some form of advisory relation between the Corporation and the Faculty, and its readiness to co-operate with the Corporation in the preparation of a plan for establishing such a relation.

In pursuance of the principle expressed by the fourth of the foregoing resolutions the following recommendations of the Committee were also adopted:—

(7) That there be a new standing officer of the Faculty known as Chairman, whose duty it shall be to preside over the Faculty meetings in the absence of the President. He shall be elected each

year by ballot at the annual meeting; but no member of the Faculty shall serve continuously as Chairman for more than two years.

(8) That there be a new standing committee, known as the Committee on Faculty Business, consisting of the President of the Institute, the Chairman, Dean, and Secretary of the Faculty, and of four other members of the Faculty. Of the elected members, two shall be chosen each year for a term of two years; and no such member of the committee shall be eligible for immediate re-election. It shall be the duty of the committee to bring before the Faculty questions of general policy, reports of work at other institutions, and other matters for general discussion; also to arrange for the presentation of annual reports from the other standing committees of the Faculty. The committee shall arrange for occasional meetings of the entire instructing staff or of any appropriate portion of it for the presentation and discussion of questions affecting the interests of the Institute.

(9) That there be a new standing committee, known as the Committee on Courses of Instruction, consisting of five members. To this committee all proposed changes in undergraduate course schemes shall be referred; and it shall be its duty to make recommendations to the Faculty on all such proposed changes.

(10) That there be a new standing committee, known as the Committee on Faculty Rules, consisting of three members, of whom the Secretary of the Faculty shall be one, to which all proposed changes in Faculty rules shall be referred and which shall prepare a new edition of the rules annually.

(11) That there be a new standing committee known as the Committee on Third-year Students, which shall consist of members of the Faculty who give instruction in third-year subjects. It shall consider all semi-annual and annual records of third-year students, and recommend to the Faculty suitable action in regard to them. The Secretary of the Faculty shall be Chairman of this committee.

Certain other recommendations were also adopted, which provide for carrying the foregoing actions into effect and which deal with other matters of Faculty procedure.

OFFICERS

At the annual meeting, May 15, the following officers were elected: Chairman, Arthur A. Noyes; Secretary, Allyne L. Merrill; Dean, Alfred E. Burton.

APPOINTMENTS AND PROMOTIONS

Promotions from Associate Professor to Professor.—John O. Sumner, A.B., Professor of History; Frederick H. Bailey, A.M., Professor of Mathematics; Henry Fay, Ph.D., Professor of Analytical Chemistry.

New Appointment.—Reginald A. Daly, Ph.D., Professor of Physical Geology. Professor William O. Crosby, S.B., has been retired under the Carnegie Foundation.

Promotions from Assistant Professor to Associate Professor.—Henry G. Pearson, A.B., Associate Professor of English; Ralph R. Lawrence, S.B., Associate Professor of Electrical Engineering; George C. Shaad, S.B., E.E., Associate Professor of Electrical Engineering.

New Appointment.—Edwin B. Wilson, Ph.D., Associate Professor of Mathematics.

Promotions from Instructor to Assistant Professor.—Leonard M. Passano, A.B., Assistant Professor of Mathematics; George L. Hosmer, Assistant Professor of Civil Engineering; Charles B. Breed, S.B., Assistant Professor of Civil Engineering; George E. Russell, Assistant Professor of Civil Engineering; Maurice De K. Thompson, Ph.D., Assistant Professor of Electro-Chemistry; Henry L. Seaver, A.B., Assistant Professor of English.

New Appointments.—Gilbert N. Lewis, Ph.D., Assistant Professor of Physico-Chemical Research; Earle B. Phelps, S.B., Assistant Professor of Research in Chemical Biology; Edward E. Bugbee, Assistant Professor of Assaying; L. E. Moore, Assistant Professor of Civil Engineering.

Resignations.—George V. Wendell, Ph.D., Associate Professor of Physics; F. P. McKibben, Associate Professor of Civil Engineering; R. W. Lodge, Assistant Professor of Mining Engineering; D. W. Johnson, Assistant Professor of Geology.

The following Instructors have received leaves of absence.—Clifford M. Swan, S.B., Instructor in Physics; Clarence L. E. Moore, Ph.D., Instructor in Mathematics; Francis Harold Dike, A.B., Instructor in Modern Languages.

Returned from leave of absence.—Daniel F. Comstock, Ph.D., Instructor in Theoretical Physics.

Resignations.—Champion H. Mathewson, Ph.D., Instructor in Analytical Chemistry; C. F. Willard, Instructor in Marine Engineering.

Promotions from Assistant to Instructor.—Royall D. Bradbury, Instructor in Civil Engineering; Clinton H. Collester, A.M., Instructor in English; Harold G. Crane, S.B., Instructor in Electrical Engineering; Waldo V. Lyon, S.B., Instructor in Electrical Engineering.

New Appointments.—Nels J. Lennes, M.Sc., Instructor in Mathematics; Richard C. Tolman, S.B., Instructor in Theoretical Chemistry; Robert S. Williams, Instructor in Analytical Chemistry; Ellwood Barker Spear, A.B., Instructor in Analytical Chemistry; Henry B. Phillips, Ph.D., Instructor in Mathematics; Raymond Haskell, S.B., S.M., Instructor in Physics; Herbert T. Kalmus, Ph.D., Instructor in Physics.

Appointments as Assistants.—Charles R. Bragdon, A.B., S.B., Assistant in Theoretical Chemistry; Paul S. Fiske, A.B., Assistant in Inorganic Chemistry; George F. White, S.B., Assistant in Organic Chemistry; Frank B. Shields, Assistant in Technical Analysis; Herman W. Mahr, Research Assistant in Technical Chemistry; Ralph G. Hudson, S.B., Assistant in Electrical Engineering; C. W. Green, Assistant in Electrical Engineering; A. E. Harrold, Assistant in Electrical Engineering; E. J. Edwards, Assistant in Electrical Engineering; Clarence C. Knipmeyer, Assistant in Electrical Engineering; Carleton Bell Nickerson, A.B., A.M., Assistant in Inorganic Chemistry; William W. Kennedy, A.B., Assistant in Inorganic Chemistry; Octavus Libbey Peabody, S.B., Assistant in Analytical Chemistry; Walter Brayton Gonder, S.B., Assistant in Analytical Chemistry; Richard G. Woodbridge, Jr., S.B., Research Assistant in Organic Chemistry; Charles E. Allen, S.B., Assistant

in Civil Engineering; Henry B. Alvord, S.B., Assistant in Civil Engineering; James M. Barker, S.B., Assistant in Civil Engineering; Allan R. Cullimore, S.B., Assistant in Civil Engineering; Raymond F. Conron, S.B., Assistant in Civil Engineering; James E. Garratt, S.B., Assistant in Civil Engineering; Clarence D. Howe, S.B., Assistant in Civil Engineering; Hudson B. Hastings, S.B., Assistant in Civil Engineering; Robert S. Gardner, S.B., Assistant in Mechanical Engineering; Charles A. Eaton, S.B., Assistant in Mechanical Engineering; John J. Thomas, S.B., Assistant in Mechanical Engineering; Bryant Nichols, S.B., Assistant in Mechanical Engineering; Kenneth Moller, S.B., Assistant in Mechanical Engineering; William W. Bigelow, S.B., Assistant in Mechanical Engineering.

Resignations.—John C. Hudgins, A.B., Assistant in Inorganic Chemistry; Ralph S. Gifford, S.B., Assistant in Theoretical Chemistry; Frank J. Quinlan, Assistant in Inorganic Chemistry; Albert H. Smith, Assistant in Mechanical Engineering; Albert L. Smith, S.B., Assistant in Analytical Chemistry; Anna M. Cederholm, S.B., Assistant in Technical Chemical Research; Walter G. de Steiguer, S.B., Assistant in Geology; Arthur Neale, S.B., A.R.C. Sc., Assistant in Technical Analysis; Fred C. Mabee, A.M., Research Assistant in Physical Chemistry; Ledyard Sargent, A.M., Research Assistant in Physical Chemistry; E. B. Spear, B.A., Research Assistant in Physical Chemistry; Robert W. McLean, S.B., Assistant in Mechanical Engineering; Horace J. McIntire, S.B., Assistant in Mechanical Engineering; Floid M. Fuller, S.B., Assistant in Mechanical Engineering; Henry R. Patterson, S.B., Assistant in Mechanical Engineering; Everett F. Tomlinson, S.B., Assistant in Mechanical Engineering; William Tufts, S.B., Assistant in Civil Engineering; George R. Guernsey, S.B., Assistant in Civil Engineering; Arthur M. Chidester, S.B., Assistant in Civil Engineering; Harold W. Beers, S.B., Assistant in Civil Engineering; Kilborn Whitman, Jr., S.B., Assistant in Civil Engineering; Carl T. Humphrey, S.B., Assistant in Civil Engineering; F. C. Starr, Instructor in Civil Engineering; George A. Rodenbaeck, S.B., Instructor in Electrical Engineering.

Lecturers.—New Appointments: James F. Kemp, A.B., E.M. Sc. D., on Economic Geology; M. C. Whitaker, S.M., on Factory Organization and Management.

COURSES FOR COLLEGE GRADUATES

A committee was appointed some time ago to consider the question of courses of study for college graduates. The following recommendations of this committee have been adopted:—

First.—That each department be requested to arrange a "fifth year" or "graduate year" of elective studies suitable for a program leading to the Master's degree as soon as it is prepared to receive students for graduate work, and that the lists of proposed subjects be referred to the Committee on Advanced Degrees and Fellowships before presentation to the Faculty. The committee urges that this be done at the earliest possible date. The admirable programs for advanced work which have been submitted in connection with the tentative three-year schedules indicate that several departments now offering no fifth year course are prepared to do so at present or at an early date.

Second.—That a more specific statement than that given at present be made in the Program, Catalogue, and special circular on Opportunities for College Graduates regarding the previous preparation necessary for admission of college graduates to the third year of each course, together with recommendations from each Department as to what subjects may advantageously be taken in the Summer School prior to or after entrance.

Third.—That college graduates who have completed (in general with not less than one year's residence) substantially all requirements in any course up to the beginning of the fourth year be allowed, subject to the approval of the Faculty, to become candidates for the Master's degree without taking the Bachelor of Science degree, on the basis of two years of additional work.

The requirements for this work would in general include subjects in the fourth year of the regular course, and subjects chosen from the list of studies offered in the fifth or graduate year, together with the preparation of a thesis. The choice and distribution of

studies constituting the schedules of both years should be made in consultation with the head of the department (it being understood that the work of the first year would consist mainly of the work of the regular fourth year) and the schedules should be approved by the Committee on Advanced Degrees and Fellowships or by a special committee of the Faculty.

Fourth.—That a revised circular on Opportunities for College Graduates be prepared, in which the required and elective subjects of the last two years of study leading to the Master's degree referred to in the preceding recommendation be included.

DOCTOR OF PHILOSOPHY

The following form of diploma for the degree of Doctor of Philosophy has been approved:—

THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY,
upon the recommendation of its Faculty,
hereby confers on

.....

the degree of

DOCTOR OF PHILOSOPHY

in recognition of his scientific attainments and ability to carry on original research, as demonstrated by the presentation of a thesis describing an investigation in ..... and by the pursuit of advanced studies in .....

Given under the seal of the Institute at Boston in the Commonwealth of Massachusetts on this....day of ..... in the year of our Lord one thousand nine hundred and .....

Secretary. [SEAL] *President.*

Students to whom the degree of Doctor of Philosophy is awarded are required to present within six months three hundred printed copies of their theses.

RESEARCH LABORATORY OF PHYSICAL CHEMISTRY

Three of the candidates for the degree of Doctor of Philosophy, Raymond Haskell, Robert B. Sosman, and Morris A. Stewart, who have been pursuing the work in the Research Laboratory of Physical Chemistry during the past three years, have completed their researches and courses of advanced study, and were awarded that degree by the Institute at the graduation exercises. Their theses were carried out in the subject of Physical Chemistry, and were entitled: "The Effect of Concentration and Ionization on the Rates of Diffusion of Salts in Aqueous Solutions," by Raymond Haskell; "The Hydrolysis of Ammonium Acetate and the Ionization of Water at High Temperature," by Robert Browning Sosman; "The Dissociation Relations of Sulphuric Acid," by Morris Archer Stewart.

FELLOWSHIPS

The following students have been awarded fellowships for the ensuing year:—

R. B. Arnold, for study in the Research Laboratory of Physical Chemistry at the Massachusetts Institute of Technology; E. F. Church, Jr., S.B. '01, for the study of Mechanical Engineering at the Massachusetts Institute of Technology; R. S. Gifford, S.B. '05, for the study of Chemistry in Germany; E. C. Jacobs, S.B. '97, for the study of Mining Engineering at the Massachusetts Institute of Technology; W. K. Lewis, S.B. '05, for the study of Chemistry in Germany; W. E. MacDonald, A.B. University of Tennessee, for the study of Mathematics at Harvard University; C. M. Swan, S.B. '99, for the study of Physics at Harvard University; R. C. Tolman, S.B. '03, for the study of Physical Chemistry at the Massachusetts Institute of Technology; and E. W. Washburn, S.B. '05, for the study of Physical Chemistry at the Massachusetts Institute of Technology.

DEGREES

On June 4 for the first time the Institute conferred the degree of Doctor of Philosophy on three students. Fourteen students received the degree of Master of Science, and the degree of Bach-

elor of Science was awarded to 208 students, the distribution of courses being as follows: Civil Engineering, 37; Mechanical Engineering, 52; Mining Engineering, 22; Architecture, 21; Chemistry, 10; Electrical Engineering, 32; Biology, none; Physics, 5; Chemical Engineering, 14; Sanitary Engineering, 3; Geology, 2; and Naval Architecture, 10.

CHANGES IN COURSE SCHEMES

The principal changes in course schemes are those for Courses II. and XIII., the general natures of which were indicated in the last number of the REVIEW.

The course in Biology has also undergone modification, and is now developing very largely along the lines of Sanitary Science and Industrial Bacteriology. Changes in the course in Electrical Engineering are now under consideration, which will doubtless result in modifications similar to those already accomplished in Courses I., II., XI., and XIII.

Beginning in 1909, two elective subjects will be required of applicants for admission to the Institute.

THE CILLEY BEQUEST

The will of Frank H. Cilley, '89, by which a bequest amounting to about $75,000 was left in trust for the equipment of the Walker Memorial Gymnasium in certain specified directions, was recently allowed by the Supreme Judicial Court of this State, confirming a similar judgment previously rendered in the Probate Court. The will was being contested by the brother of the deceased on the ground of unsoundness of mind at the time of the execution.

NOTES

The Executive Committee have approved the recommendation of the Faculty that a fee of $5 shall be charged each applicant for entrance examinations. This fee is to be credited on the first term bill of those students who enter the Institute.

The list of options in third year General Studies has been in-

creased by the addition of a course in Argumentation and Debate; and the course in History of Science has been extended, so that it comprises two terms of work instead of one.

The alumni office, which has already proved of so much value to various Technology interests, will in future be maintained by the Institute under the general direction of the Secretary.

DEPARTMENT NOTES

CIVIL ENGINEERING

Professor McKibben, of the Civil Engineering Department, has resigned his position at the Institute to accept the position of Professor of Civil Engineering, in charge of the department at Lehigh University, succeeding Professor Merriman, who has been at the head of this department for many years. Professor McKibben leaves the Institute with the best wishes of all his associates and their confident hopes that he may achieve high success and reputation in his new position.

The demand for graduates from the Civil Engineering Department during the past few months has shown no falling off as compared with previous years. Many applications have been received, the total number being far in excess of the number of men available. The great works in engineering now in progress in this country, such as the New York Water Supply, the Panama Canal, and the terminal improvements of railroads, etc., continually call for large numbers of young men; and a young man who graduates from the Civil Engineering Department, and who can be personally recommended by his professors, is sure of a good position.

Mr. R. D. Bradbury, assistant in the Civil Engineering Department, is spending the summer in the employ of S. E. Thompson, the concrete expert.

The Summer School of the Civil Engineering Department is more largely attended this year than ever before, between twenty-five and twenty students leaving Boston to take part in this course, which will this year be held at Rangeley, Me. The work will be under the charge of Professor Robbins, assisted by Professors Breed and

Hosmer, Instructor Russell, Mr. Starr, who has been an assistant in the department, and Mr. Barker, one of the graduates of this year.

Following is an extract from Boston *Transcript* of June 6, 1907:—

In conferring the honorary degree of Doctor of Laws on Professor George Fillmore Swain yesterday, the University of New York did not for the first time honor the head of the Civil Engineering Department of the Massachusetts Institute of Technology and member of the Boston Transit Commission. It was this same university which some time since appointed him one of the electors of the Hall of Fame. Professor Swain received his latest honor by reason of his efforts to advance scientific education, and his eminent work and his high reputation as an engineer.

MINING ENGINEERING

Professor Richard W. Lodge has handed in his resignation of his position in charge of assaying and a portion of the work in metallurgy at the Institute. He has now been with us nineteen years, and his stay has been noteworthy from the care and the thoroughness with which he has done his work, and the effort he has always made to instill this idea of thoroughness into the students of the department who have had the privilege of working with him. He will be much missed by the corps of instructors of the department, as well as by the students. That he may find congenial occupation is the wish of all the department. He has been invited to keep his desk at the school and to make it his headquarters at such times as his convenience makes it satisfactory for him to do so.

In his place Professor Edward E. Bugbee, class of 1900, who has been at the University of Iowa and later at the University of Washington at Seattle, giving the instruction in metallurgy and assaying, has received the appointment. Professor Bugbee is well known to all the department and highly esteemed. It is hoped that he will be able to continue the good work which has been carried on in the past by Professor Lodge, and that he will also bring in new ideas which he has gathered in his experience in the West.

The Summer School of the Mining Department this year has visited Maryland, Pennsylvania, and New Jersey. Among the places

visited and studied were the steel works of the Maryland Steel Company, the steel works of the Pennsylvania Steel Company, and the concentrating works of the latter company at Lebanon, Pa., the steel plant at Bethlehem, Pa., a cement plant in the Lehigh Valley, an anthracite mine and breaker, and a zinc plant of the New Jersey Zinc Company in the Lehigh Valley. In New Jersey the Atha Steel Casting Works and the Balbach Silver Lead Plant were visited, in New York the Raritan Copper Works, and the Nichols Copper Company. The trip was finished on the 25th of June.

ARCHITECTURE

The studio of the Department of Architecture was the scene, April 9, of the April meeting of the Boston Society of Architects. Dr. Pritchett, Professor Burton, and the members of the instructing staff of the department, together with the students who received awards and mentions in the recent competition, were present as the guests of the society.

A dinner was served at 6.30, and the smoke talk, at which the fourth and fifth year architects were present, was held at eight o'clock. R. Clipston Sturgis gave a talk on "Houses and Gardens in Wells, England," and Mr. Atkinson spoke on "Subway Connections."

CHEMISTRY AND CHEMICAL ENGINEERING

The following instructors and assistants have resigned their positions: Dr. Champion H. Mathewson, Instructor in Analytical Chemistry, Miss Anna M. Cederholm, Research Assistant in Technical Chemistry, and Dr. Raymond Haskell, Instructor in Theoretical Chemistry, all of whom expect to teach next year; Mr. Ralph S. Gifford, Assistant in Theoretical Chemistry, who expects to study abroad; and Messrs. John C. Hudgins and Frank J. Quinlan, Assistants in Inorganic Chemistry, Albert L. Smith and Frederick J. Willcox, Assistants in Analytical Chemistry, Arthur Neale, Assistant in Technical Analysis, and Leavitt N. Bent, Research Assistant in Technical Chemistry, all of whom are to take positions in

the industrial field. The new members of the instructing staff for next year are: Mr. Robert S. Williams, Instructor in Analytical Chemistry, who returns from study in Germany; Dr. Elwood B. Spear, Instructor in Analytical Chemistry, who has for the past year been Research Assistant in Physical Chemistry; Mr. Richard C. Tolman, Instructor in Theoretical Chemistry, who is a graduate student in Physical Chemistry; Mr. Charles R. Bragdon, Assistant in Theoretical Chemistry, and Mr. Octavius L. Peabody, Assistant in Analytical Chemistry, both graduates in Chemical Engineering of 1907; Messrs. Walter B. Gonder, Assistant in Analytical Chemistry, Hermann W. Mahr, Research Assistant in Technical Chemistry, Richard G. Woodbridge, Jr., Research Assistant in Organic Chemistry, and Frank P. Shields, Assistant in Technical Analysis, all graduates in Chemistry of 1907; Mr. Paul S. Fiske, Assistant in Inorganic Chemistry, a graduate of Harvard, 1907; Mr. William W. Kennedy, Assistant in Inorganic Chemistry, a graduate of the University of Minnesota; and Mr. Carleton B. Nickerson, Assistant in Inorganic Chemistry, a graduate student from Clark College at Worcester. Mr. John F. Norton, Assistant in Organic Chemistry, is transferred to Industrial Chemistry, and Mr. George F. White is transferred from Analytical Chemistry to Organic Chemistry.

Dr. Mathewson will spend the summer in the research laboratories of the General Electric Company at Schenectady, but expects to give instruction in Metallography at Yale next year. Mr. A. L. Smith expects to remain for some time in the laboratory at Schenectady. Mr. Neale has a position with the Spencer-Kellogg Company at Buffalo, and Mr. Willcox is located at Duquesne, Pa., with the steel industry.

The changes in methods of instruction which have been outlined in the REVIEW have apparently been successful. The degree of interest aroused by the course in Inorganic Preparations in the past year, which replaced that in Qualitative Analysis for a number of the students, was very satisfactory. It is too early to ascertain the effect of this change upon subsequent courses.

The department conferences will be continued next year. Those of the present year dealt with the important branches of instruction

in chemistry as such, and in the later conferences it is intended to discuss and compare methods of instruction, and to consider the relations of the chemical instruction to the work of the various professional courses, as to effectiveness under existing conditions.

One of the most important innovations of the year, which has also been noted in the REVIEW, is the beginning of a Research Laboratory of Technical Chemistry. Through the employment of two assistants under Dr. W. H. Walker the work has already led to results which are of great interest and importance, and it is gratifying to state that an appropriation from the Charlotte B. Richardson Fund has been made which will permit the continuance of the work next year. It is earnestly to be hoped that a permanent endowment for this laboratory may soon be secured. An outline of the work of the past year follows.

The work, as already outlined in the REVIEW, has been largely concentrated upon the problem of the corrosion of iron and steel. Two phases of the subject have now been practically completed. The first constitutes in part the matter presented as a thesis by Mr. Colby Dill last June for the degree of Master of Science, and has to do with the influence of stress upon the corrosion of iron. Considerable work, highly contradictory in the results obtained, had already been done, and engineers are divided in opinion as to whether stress is a real factor in causing corrosion. It is thought that Mr. Dill's work conclusively proves that stresses which produce strains not exceeding the elastic limit of the metal are without effect upon the potential of the metal, and, therefore, cannot influence corrosion. As the stress is increased beyond the elastic limit, a large increase in potential is noted, but which exists only as long as the stress is applied. After fracture the strained metal usually shows the same potential as the unstrained piece, although exceptions were found. In these exceptional cases the electromotive force of the system was as often found to be less than that of the unstrained metal as it was found to be greater than the latter, so that its behavior under such conditions cannot be predicted. These results have received indorsement by other work of this laboratory, in which the difference of potential between hard-drawn wire (which may be assumed to be

still strained beyond its elastic limit) was measured against the same wire carefully annealed. The variations between the two wires were found to be no greater than those between different portions of the same wire. The conclusions are, therefore, that within the elastic limit (which covers the greater portion of the cases met with in engineering practice) stress is without influence upon corrosion, and that beyond this limit the influence of stress has superimposed upon it other factors of greater importance not yet determined.

The second portion of the work, which has been carried on by Miss Anna M. Cederholm and Mr. Leavitt N. Bent, has been devoted to an explanation of the mechanism of the reaction by which corrosion of iron or steel takes place. The theory generally held and most frequently given in text-books is to the effect that iron will corrode only in the presence of liquid water, oxygen, and carbon dioxide. Dr. W. R. Whitney, while at the Institute, enunciated a theory based upon Nernst's conception of electromotive force and the modern theory of solutions. He pointed out that corrosion is an electrochemical phenomenon depending only upon the difference of potential between two points and the resistance in the circuit. Iron dissolved in water free from both oxygen and carbon dioxide because the solution pressure of iron is greater than that of hydrogen, in a way analogous to the well-known precipitation of copper from a copper sulphate solution by iron, the latter being dissolved. Hence acidic reagents, even carbon dioxide, which increase the concentration of the hydrogen ion, will accelerate corrosion, and, on the other hand, reagents which decrease the concentration of the hydrogen ion (as, for example, the alkalis or any salts which by hydrolysis produce hydroxyl ions) will inhibit corrosion.

A number of investigators, in repeating Whitney's work, have failed to duplicate his results; and the electrochemical theory has not been generally accepted, if one may judge by references to the subject made in modern text-books. The work of this laboratory shows that Whitney was essentially correct in his conclusions, although he omitted one important factor, namely, oxygen. It has been shown that iron does dissolve in water free from oxygen and carbon dioxide, but only to a limited extent. Action ceases when

the cathodic portions of the iron become polarized by the separated hydrogen, and continues only when this polarizing hydrogen is removed. As a corollary of this, it has been found that the speed of corrosion of iron in water is a linear function of the partial pressure of the oxygen in the atmosphere above it. Experiments have been devised in which the necessity of this depolarization, in order that corrosion may continue, is easily and convincingly shown.

Another interesting fact is that those samples of iron which in practice have a great tendency to corrode, also show marked differences of potential at points selected at random over the surface of the piece, while specimens of iron which resist corrosion are almost devoid of these potential differences. The conclusions which may be drawn from these phenomena are so important that the work must be carried further before anything definite can be said regarding it.

An investigation of a method devised some time ago by Professor Walker of a process for annealing sterling silver without deterioration due to oxidation, blistering, pitting, etc., has been completed. Practically all the large silver manufacturing establishments are now operating in accordance with the principles which were made clear for the first time by this investigation.

ELECTRICAL ENGINEERING

Thirty-two men graduated from the electrical engineering course at the last Commencement, and these men are starting upon their business life with good prospects. The class that follows them will apparently be larger in numbers.

Some changes in the electrical engineering course are proposed after a consultation with a special advisory committee of engineers which was appointed by the Corporation over a year ago to confer with the teachers of the department. This advisory committee consists of Professor Elihu Thomson, of the Corporation; Mr. C. L. Edgar, president of the Edison Electric Illuminating Company of Boston; Mr. Hammond V. Hayes, chief engineer of the American Telephone and Telegraph Company of Boston; Mr.

Charles F. Scott, consulting engineer of the Westinghouse Electric and Manufacturing Company of Pittsburg; and Mr. Louis A. Ferguson, vice-president of the Chicago Edison Company of Chicago. As is well known, Professor Thomson is a member of the Corporation, Mr. Hayes spent a period in important graduate study at the Institute, and Mr. Ferguson is a graduate from Course VI. in the class of '88. The standing of Mr. Edgar and Mr. Scott in the electrical engineering profession is well known.

The advice of the visiting committee of the Corporation was also joined in this matter of the course of study with that of the special advisory committee. The Visiting Committee consists of Professor Elihu Thomson, Mr. Francis Blake, Mr. F. P. Fish, Mr. Charles A. Stone ('88), Professor Percival Lowell, and Mr. Charles T. Main ('76). All of these men have given active attention to the matter of the changes of the course with the exception of Professor Percival Lowell, whose location in Arizona has made it impracticable for him to confer.

The first year of the proposed new arrangement of the course does not differ, as far as hours are concerned, from the first year of the now existing course, but in the new arrangement the student is expected to take one foreign language for a year and a half instead of two foreign languages each for a year.

The students enter the Institute of Technology from high schools or fitting schools after having been provided with a certain amount of preparation in the German language and an equal amount of preparation in the French language, amounting to substantially two years of study of each. This seems to put the students who enter the Institute in a position to read rather easy French, so that they have a start which will enable them to read ordinary French technical literature. As far as German is concerned, the language is so much more complex that the entering students seem entirely unable to read the ordinary technical literature, and have difficulty in reading it in rather elementary form even after a year's study at the Institute. For this reason it is proposed to emphasize the study of German in the course at the Institute, and to require the students to carry the language three terms, in order that they may come to

some reasonable attainment in it. We here assume that a reasonably equal command of French is gained in the preparatory schools. While we put emphasis on the German for the reasons above stated, it is proposed to give the students the option between German, French, and Spanish for the foreign language which is to be studied in the Institute, in instances where an adequate reason can be given for taking one of the two latter instead of the German.

The changes in the course which are of greatest importance begin with the second year, and the earlier of these are particularly directed towards starting the study of applied mechanics at the opening of the second term of the second year. This is for the purpose of improving the relative order of the instruction, and this particular change is to get the applied mechanics under way relatively early, so that the students may have a knowledge of the theorems of applied mechanics for their professional studies even as early as the opening of the third year, and it is expected to get the study of this subject *per se* completed by the middle of the third year, in order that the propositions of applied mechanics may be most effectively used by the students during their distinctively professional work throughout the third and fourth years.

An analogous change, which starts applied mechanics at the middle of the second year, has already been put into effect in the civil engineering course, and will go into effect next year with the mechanical engineering course.

Another feature of the proposed changes in the second year of the electrical engineering course comprises a series of six lectures delivered during the first week and a half of the second term to the second-year men that will be given by the professor of electrical engineering. These lectures will relate to power and its applications, the importance of the place that power holds in industrial life, and the effect of the utilization of power on civilization, with the idea of briefly directing the attention of these second-year students toward the important part that the use of power plays in advancing civilization, and toward the manner in which the engineer is called upon to apply power to useful purposes. This will give the students a certain start in the direction of thoughtful consideration

of what they are about, and will fill a need which has not heretofore been provided for in the course. These lectures will also be directed toward calling the students' attention to the great importance to the electrical engineer of the study of the subjects of thermodynamics and its applications, and hydraulics and its applications, etc., in addition to the subjects that more distinctly relate to the flow of electric currents. There is a rather general tendency of students to execute their work somewhat carelessly in those subjects which are not distinctively electrical in character, but this, as a rule, is to their ultimate disadvantage as engineers, and advantage will here be taken of the opportunity of urging the students to start on a career of trying to do all of their work thoroughly.

As far as the third year of the new course is concerned, the proposed changes mostly occur as the result of the introduction of applied mechanics during the first term in a sufficient amount to finish up the class study of the subject *per se*. For this purpose the amounts of general studies given in this year are reduced somewhat, but time for these is allowed in the fourth year. The study of hydraulics is also taken up in this year, beginning with the second term, and the course extends through the first term of the fourth year. It is proposed to enlarge the students' horizon by thus increasing and improving the work done in the study of hydraulics, improving their study of steam engineering, and adding a little of the design of stationary structures in addition to the small amount of machine design which the students of Course VI. get. Opportunity is taken, however, to reduce somewhat the number of subjects studied in each term, so that thorough work may be exacted in each subject as it is assigned.

The proposed changes of the course afford the fourth-year student an opportunity to begin his thesis (which is supposed to be an investigation of some subject largely upon the student's own responsibility) at the opening of the first term, and the thesis can then run through the year. The student is also given some opportunity of selection between professional subjects, so that a certain amount of responsibility for the details of his own course of study and procedure is thrown upon him, with due advice and suggestion from the teachers

in the department, and especially from the head of the department. The students will have to be responsible for their courses of procedure after they graduate, and it seems desirable to begin to throw some of this responsibility on them while in the Institute, so that their personal sense of responsibility may be developed as far as practicable before they graduate from their engineering course. With this idea in view some fourth-year subjects which deal with professional engineering are omitted from the prescribed list, and the students are afforded an opportunity for a certain amount of selection for themselves as between the individual professional subjects, with the counsel of the teaching force of the department, as said above, and the approval of the head of the department.

The proposed rearrangement of the course also adds to the significance for the electrical engineering students of what, in the language of the Faculty, are known as general studies, such as history, economics, etc., by placing some of the study of such subjects in the fourth year, so that a student may not be misled into believing that entering upon the professional phases of his study leading to his future professional life absolves him from the manifold considerations of breadth of manhood and citizenship.

The proposed rearrangement of the electrical engineering course is now standing before the Faculty for its consideration, but it will not come up for final vote until one of the early meetings in the next college year. If passed by the Faculty, as we hope it will be passed, it is expected to put it into effect with the opening of the second term, but it can go into effect next year with the second-year men only. Obviously, the third and fourth year modifications cannot go into effect next year because the arrangement of the third year is dominated by the change in the applied mechanics, and the third-year men of next year will not have had the advantage of the study of the first half of applied mechanics in their second year.

As a temporary matter looking toward the rearrangement of the course, the Faculty has voted the privilege to Professor D. C. Jackson to give a course of lectures extending throughout the year on various phases of electric lighting, electric transmission of power, and electric railways, which will be prescribed for fourth-year students in the electrical engineering course during the next school year.

Professor Clifford has been planning to take his family on a European trip this summer, but certain matters will delay his getting away. He has, therefore, been granted leave of absence for the first month of the next college year. During the period of his absence Professor Jackson will take up the lectures in alternating current machinery, and Professor Smith will take up the lectures in theoretical electricity. Professor Clifford plans to deliver a course of advanced lectures on alternating currents. These will be for graduate students, and will be as a sequel to his course of lectures for undergraduates. They will begin early in November, and continue through the year.

Professor Laws is revising the manuscript of his admirable set of lectures on electrical measuring instruments and electrical testing, and they will soon be put in the hands of a publisher for the purpose of being issued in book form.

Professor R. R. Lawrence has now full charge of the electrical engineering laboratories. During the examination period he spent ten days in a trip of inspection of the electrical laboratories of a half-dozen of the great State universities of the Central West.

Professor Shaad, who came to the department at the opening of the last college year, is busily engaged on the manuscript of a treatise relating to central stations that will go into an engineer's pocket-book soon to be published, and he also is preparing a manuscript for a text- and reference-book on central station practice.

Professor Smith has developed a remarkable series of illustrated lectures on electrical engineering subjects, for which further opportunity will also be afforded in case the proposed changes in the electrical engineering course go into effect.

Professor Jackson completed his work as chairman of the Chicago Telephone Commission in the month of March, and the report of the commission was delivered to the Chicago City Council on April 3. Professor Jackson was appointed chairman of a board of arbitration in a matter between the city of Boston and the Edison Electric Illuminating Company of Boston, and the settlement of that question was actively taken up in the week following Commencement.

PHYSICS

Mr. Clifford M. Swan, for several years past Instructor in Physics, has been granted leave of absence for a year. He is to pursue advanced physical and mathematical studies at Harvard University.

Mr. Guy W. Eastman, Instructor in Physics and Austin Fellow of the Institute, was instantly killed May 17 by a railway train while attempting to cross the tracks of the New York, New Haven & Hartford Railroad at the Back Bay station.

Mr. Eastman was pursuing a course leading to the degree of Ph.D. in the Laboratory of Chemical Research, and combined this with the duties of a "half-time" instructor in the Department of Physics. He was an earnest student, very sound in his knowledge, and a devoted and successful teacher, with every prospect of success in his chosen profession.

A more extended sketch of Mr. Eastman's life and work appears elsewhere in this number of the REVIEW.

Professor George V. Wendell has resigned his position as Associate Professor in the Institute to become Professor of Physics, in charge of the department, at the Stevens Institute of Technology, Hoboken.

The loss of Professor Wendell will be felt very keenly and deeply both by his colleagues in the Physical Department and by the numerous students to whom he has become endeared by his unfailing kindness and help. The Stevens Institute is indeed fortunate in securing the services of so able and experienced an instructor.

NAVAL ARCHITECTURE

There having been so wide a discussion of the decay of American shipping, especially in connection with the failure of certain political expedients that were intended to bring about a revival, it is with great satisfaction that it can be reported that the Department of Naval Architecture is, in one respect at least, in normal condition; namely, that there are more applications than there are men to supply them. If there is any member of the graduating class from that department who is not at work, it is because he desires a vacation.

And it has not been necessary to appeal to the engagement list of another department to bring about this condition.

That this condition obtains should receive some publicity, because there appears just now to be an unreasoning disinclination among students in the earlier classes to take advantages of the department which has every facility for carrying out its work.

That there should have been a large increase of numbers in the department occasioned by the awakening of shipbuilding following our Spanish War, and that the reaction intensified by the collapse of the shipbuilding trust should also have been reflected by a reduction in numbers, was to be expected, and is, perhaps, not unsalutary. But with conditions as they are now it is certain that for some years to come the department will be unable to meet the demands made on it, which is doubly unfortunate, because those seeking young men who have had the training offered by the department will learn to look elsewhere, and (what is the more to be regretted) because a number of young men who desire and who ought to take that course will take up with something less congenial; and to that extent will find the discipline of education irksome instead of inspiriting.

MODERN LANGUAGES

The Modern Language Department has begun to experience the advantage of a reduction of the size of sections resulting from the exemption of students of Courses I. and XI. from a part of the language work hitherto required. This diminution of the language requirements has been extended during the past year to students of Courses II. and VIII., and seems likely to be extended next year to students of at least one other course.

Mr. Dike has left the department on a year's leave of absence. He expects to spend the summer in Brittany and the winter in Paris. He is to observe and study European methods of modern language teaching and report upon them on his return. While abroad he will be engaged also in translating into English "Elements et Théories de l'Architecture," by J. Guadet, and in preparing a text-book of popular French reading for use in American colleges. In Paris

he will take courses in philology and kindred subjects at the university.

MATHEMATICS

Appointments for the coming year include the promotion of Associate Professor Bailey, who has been a member of the department since 1891, to a full professorship; the promotion of Mr. Passano to an assistant professorship; the appointment of Dr. E. B. Wilson, of Yale University, as Associate Professor, and of Dr. H. B. Phillips and Mr. N. J. Lennes as Instructors.

Professor Wilson is a graduate of Harvard University, and took his Doctor's degree at Yale in 1900. He is a man of high scientific reputation, has published many mathematical papers, and is specially interested in the applications of mathematics in physics and mechanics. His published papers have appeared in a considerable number of American and foreign journals, and he is at present associate editor of the Transactions of the American Mathematical Society.

Dr. Phillips is a graduate of Erskine College, South Carolina, and took his Doctor's degree at Johns Hopkins University in 1904, since which time he has been Instructor at the University of Cincinnati.

Mr. Lennes is at present Instructor of Mathematics in the John Marshall High School at Chicago. He has taken his Doctor's degree at the University of Chicago, and is the joint author with Professor Veblen, of Princeton University, of a new book on the Infinitesimal Analysis.

THE UNDERGRADUATES

PROFESSIONAL SOCIETIES

Civil Engineering Society.—For the tenth time the society met April 12 at the Copley Square Hotel for its annual dinner. With several prominent men from outside and Institute professors as speakers, the talk covered nearly every phase of civil engineering work. Dean W. C. Sabine of the Lawrence Scientific School, and Professor Sedgwick spoke.

Mechanical Engineering Society.—The society held a smoker and business meeting at the Union April 11. Mr. J. C. Callan, a representative of the General Electric Company, spoke on Curtis Turbines.

The election of new officers resulted as follows: president, R. A. Angus, '08; vice-president, C. G. Jerden, '08; secretary, C. M. Steese, '08; executive committee, H. E. Allen, '08; H. R. Callaway, '08; and M. J. Turnbull, '09.

Mining Engineering Society.—A number of members of the society attended a very interesting talk on Mine Optioning and Mining Companies by Dr. Peters at the Harvard Mining Club meeting, April 4.

The Harvard Club was invited to attend, in return, the meeting of the Institute Society on April 9. Professor Richards gave a talk on Mining in Mexico, as observed by a party, of which he was one, of members of the American Institute of Mining Engineers, which took a trip through Mexico in 1901.

At the annual meeting of the society the following officers were elected: W. J. Barcus, '08, president; D. H. Maxwell, vice-president and treasurer; A. S. Dickerman, '09, secretary; W. S. Clark, '08; and A. Bridgeman, '07, executive committee.

Architectural Society.—At the annual meeting April 30 the following were elected officers: E. J. Williams, '08, president; Kurt Vonnegut, '08, vice-president; H. H. Bentley, '08, secretary; H. D. Chandler, '09, secretary; R. G. Crane, '08, H. F. Kuehne, '08, and W. F. Dolke, '08, executive committee. The report of the treasurer

showed that $535 had been added to the society's scholarship fund as the profits from the '04–'05 *Annual*. The total is now $735.

Chemical Society.—At the annual dinner, held April 17 at the Union, the following officers were elected for the ensuing year: president, Wemple, '08; vice-president, Todd, '08; secretary, Koppetz, '09; treasurer, Tetlow, '08; member of executive committee, Kelly, '09. J. F. Norton, '06, acted as toastmaster. The speakers were Dr. Talbot, Dr. Fay, Dr. Walker, and Mr. Kneeland.

Electrical Engineering Society.—Before the society at the Union, April 22, Frederick P. Fish, of the Corporation, and former president of the American Telephone and Telegraph Company, gave an address in which he urged the necessity of outside recreation.

Naval Architecture Society.—At a meeting held April 30 the following officers were elected for the ensuing year: president, M. E. Denny, '08; vice-president, A. C. Besselievre, '08; secretary, C. D. Steele, '08; treasurer, L. H. Sutton, '08.

CLUBS

Co-operative Society.—At the annual meeting of the directors the treasurer's report for the year 1906–07 was presented, showing an increase in membership and receipts from sales in the various buildings.

This year the society has handed over $950 to the Bursar, who has used it for scholarship and loan purposes. $500 has gone to the regular scholarship fund, while the other $450 has been used as a part of a so-called Bursar's fund.

This latter is a sum of money which Bursar Rand has gathered together, the income from which is to be used to help students who, through no fault of their own, lose scholarships, and to help those who are occasionally found working under conditions that are a serious handicap to good scholarship.

Civic Club.—The club held its dinner and annual election of officers at the Union April 18. About thirty were present. The officers are: J. G. Reid, president; C. Hibbard, vice-president; O. J. Crommett, secretary; R. Ellis, treasurer.

Mr. Seaver, the speaker of the evening, gave a talk on the Duty of Kicking Wisely.

The club held its last meeting May 3. The subject under discussion was, "*Resolved*, That the Introduction of Cabinet Government into the United States would be Advisable." R. Ellis, '09, a member from England, spoke on the affirmative, and S. L. Henderson, '10, spoke on the negative. The negative side received the majority of votes on the merits of the question.

Catholic Club.—May 10 the club held its last meeting of the year for the purpose of electing officers. The results were as follows: president, Joseph Pope, '08; vice-president, J. T. Gallagher, '08; secretary, F. M. Heidelberg, '09; treasurer, Joseph White, '08; executive committee, Joseph White, '08, P. F. O'Shea, '09, N. B. Enneking, '10.

El Circulo Mexicana.—The club held a dinner at the Boston Yacht Club May 4 in celebration of the 5th of May, the anniversary of the defeat of the French by the Mexicans. About twenty-five men were present, several of whom were Harvard men. Mr. Cushing, the Mexican consul in Boston, was the guest of honor.

El Circulo Mexicana was formed during this last year, and has at present about fifteen members. The dinner consisted strictly of Mexican dishes.

New York Club.—The club held its second annual dinner at the Union April 10. About thirty members were present, and they elected officers for next year as follows: C. W. Coffin, president; C. J. Belden, vice-president; C. Kurtzman, secretary; G. W. Cooke, treasurer; F. J. Friedman and H. E. Botsford, members of the executive committee.

Southern Club.—At the club's first dinner, held May 11 at the Union, Professor J. F. Norris, president of the Technology Club, was the speaker. A constitution was adopted, and officers for the next year were elected. E. F. Whitney, '07, officiated as toastmaster.

Mechanic Arts High School Club.—At the second annual dinner of the club, held April 3 at the Union, forty-five men were present, including several guests from Harvard and Tufts and under-

graduates of the school. Dr. Parmenter and Mr. Hanson of the school were present, and spoke briefly.

Cleofan.—At the last meeting the following officers were elected for the next school year: president, Miss Ruth Maxwell, '09; vice-president, Miss Florence H. Luscomb, '09; secretary, Miss Gladys Blake, '09; treasurer, Miss Lahvesia Packwood, '07.

Y. M. C. A.

Professor Talbot spoke informally at the meeting May 2 on what a scientific man's idea of God should be, and how this idea should influence his life.

Professor Porter addressed the meeting May 10. He spoke in a general way on what the Y. M. C. A. has done and is doing. He said that there has been a Christian Association at Tech for fifteen years.

A new course has been entered upon this year. In the election of Lester W. Brock, '07, as graduate secretary, Tech takes a stand with the colleges and universities foremost in Y. M. C. A. work.

Mr. Brock was one of Tech's representatives last year at the great national conference of college Y. M. C. A. and Y. W. C. A. workers at Nashville, Tenn. He also attended the Northfield conference for Eastern College Associations. In undertaking this work, Mr. Brock has the advantage of being able to devote his entire attention to the Technology Association. He will strive to guide the association to where it will be self-supporting, the end which Mr. Gates, the retiring secretary, has always had in view.

Technology will have a large delegation at the college Y. M. C. A. conference at Northfield.

INTERSCHOLASTIC DRILL

At the New England Interscholastic Championship Drill, held in the South Armory on May 1, P. A. Hall, of Medford High School, carried off first prize, while Chelsea High School was awarded the silver cup for the most points.

The squad of competitors consisted of three men from each of

the following high schools: Fall River, Medford, Chelsea, Wakefield, Brockton, Stoneham, Lowell, Methuen, Gloucester, New Bedford, Hyde Park, Dorchester, and Concord, N.H. The drill consisted of the manual of arms, marchings, and facings. Major James C. Smith, 6th Infantry, M. V. M., Captain Frank S. Wilson, and Lieutenant Clifford L. Harris, Corps Coast Artillery, acted as judges.

Before the individual drill the M. I. T. Battalion gave an exhibition company drill, and after the presentation of prizes by Major Wheeler an evening parade was held. Music was furnished between the acts by the M. I. T. Cadet Band.

"THE TECH"

The Tech held its annual banquet at the American House on May 8, seventeen members of the editorial and business staffs being present. Mr. F. P. Sibley, of the Boston *Globe*, gave a deeply interesting insight into modern newspaper work.

Henry W. Hoole, '08, has been elected editor-in-chief. W. Fred Dolke, Jr., '08, will continue as managing editor, and Raymond W. Parlin, '08, as business manager. D. C. McMurtrie, '10, has been elected secretary of the board and sporting editor.

TECH SHOW DINNER

The success of "William, Willie, and Bill" was emphasized in many ways at the Tech Show dinner at the Union, May 10. Financially, the Show will equal, if not surpass, "The Chemical Maid" in profits, as at least $1,500 will be cleared, the business manager stated.

Instead of confining the entertainment to speech-making and singing, Macomber, '07, who acted as toastmaster, hit upon the happy scheme of having many of the principals appear in costume, several of them being taken from former Shows. Thus the speeches were interspersed with stunts.

Speeches were made by Mr. J. P. Munroe, of the Corporation, Dean Burton, Bursar Rand, Professor Jackson, Professor Clifford,

Mr. McCready, Mr. Blachstein, Mr. Seaver, Professor Richards, Mr. McMillin, in "How it Happened, or the Wellesley Deal," and Mr. Francis.

ATHLETICS

RESIGNATION OF MR. MAHAN

John F. Mahan, who has been coach and director of Tech track athletics for six years, resigned his position May 7, this resignation to go into effect at the end of the present school year. His action was brought about by a disagreement over money matters between Mr. Mahan and the Advisory Council on Athletics.

CABOT MEDALS

The Cabot Medals for this year have been awarded to E. E. Turkington, '07; J. E. Johnson, '07; E. Myers, '08; G. Schobinger, '08; and F. M. Heidelberg, '09. Honorable Mentions were awarded to J. Flanders, '09; L. A. Dow, '10; F. E. Hodges, '10; R. E. Gegenheimer, '10; and T. B. Silsbee, '10.

The committee of award was composed of Professor Wendell, chairman, Dean Burton, Professors Lodge and Johnston, and Mr. Towne.

ANNUAL EXHIBITION AT THE GYM

The third annual gymnastic exhibition was held April 23. One of the most interesting events was the presentation of the Cabot medals to John Tobin, '08, Frederick Jaeger, '09, John Tresnon, '07, P. P. Greenwood, '07, and L. Tuckerman, '06, for physical development and general gymnastic efficiency. Boxing matches between Schneider and Higgins, and Starkweather and Allen, added to the interest. The other events were principally gymnastics, such as tumbling, club swinging, and excellent work on the high horizontal bar.

TRACK TEAM

May 29 Thomas W. Orr, '08, was elected captain of the track team for next year. At the New England Intercollegiate Meet on

May 26 the Tech track team secured fourth place with twenty-one points, easily out-distancing Williams, her old rival, who finished fifth with only eleven.

Dartmouth won the meet with forty-seven points, while Brown and Amherst ran a close race for second place, the former eventually winning with twenty-eight and a half points against the twenty-seven scored by her rival.

INTERCOLLEGIATE LAWN TENNIS

Technology won both singles and doubles in the eighth annual New England intercollegiate lawn tennis championships, with J. I. B. Larned and W. B. Coffin as the Institute men to win all matches. Larned walked off with the singles.

The summary for the Tech matches are:—

Singles

FIRST ROUND.—Budling (Brown) beat Fanning (Tech), 7–5, 2–6, 10–8. Larned (Tech) beat Thompson (Williams), 6–4, 6–0.

SEMI-FINALS.—Larned (Tech) beat Stearns (Dartmouth), 6–0, 6–0. Larned (Tech) beat White (Wesleyan), 7–5, 6–3.

FINAL.—Larned (Tech) beat Budlong (Brown), 5–7, 2–6, 6–3, 7–5, 6–1.

Doubles

FIRST ROUND.—Larned and Coffin (Tech) beat Rotch and McLain (Dartmouth), 6–3, 6–3.

SEMI-FINALS.—Larned and Coffin (Tech) beat Budlong and Wycoff (Brown), 6–4, 6–2.

FINALS.—Larned and Coffin (Tech) beat Wolff and Graham (Amherst), 6–3, 6–2, 6–0.

DUAL MEET WITH MAINE

Tech won the meet from the University of Maine at Orono May 6 by the score of 86 to 40. The field, laid out on soft clayey ground, was a pond, and the track was very slippery.

DUAL MEET WITH BROWN

The meet on May 11 went to Brown by the score of 68⅔ to 57⅓ points.

	Brown.	*Tech.*
100-yard dash	5	4
220-yard dash	1	8
440-yard dash	4	5
880-yard run	4	5
1-mile run	8	1
2-mile run	6	3
120-yard hurdles	5	4
220-yard hurdles	5	4
High jump	2⅔	6⅓
Pole vault	2	7
Broad jump	5	4
Shot put	8	1
Hammer throw	5	4
Discus throw	8	1
Totals	68⅔	57⅓

RELAY TEAM

Victory was the result of the relay team's trip to the Pennsylvania games. Close in every relay, with a fast total time, the best quartette of quarter-milers in years carried off first honors in a mile relay against Wesleyan April 27 at Franklin Field, Philadelphia.

THE GRADUATES

TECHNOLOGY ASSOCIATION OF THE CONNECTICUT VALLEY

"We've had feasts of reason heretofore, and great and weighty have been the words about our hospitable board. We've been highly edified and vastly improved, and we return thanks, but this time, brethren, we are going to have a flow of soul and anything else that will flow freely. We're going to play for one whole evening." That was the purport of the call issued by the Technology Association of the Connecticut Valley to its annual banquet, which was pulled off at the Massasoit House, Springfield, Saturday evening, May 4, 1907, be it long remembered. Massasoit was an Indian, and the tribe was there. This call to a feast and grand pow-wow hit the tribe under precisely the right rib, and the replies came in per return mail. About three hundred men are on our list, but our reservation extends from the Great Bitter Water on the south to the Big Bending Water on the north. To you aliens who do not catch on, let us say that these are Long Island Sound and the St. Lawrence River. East and west we extend from Boston Bay to the Hudson, though we have not as yet catalogued all of the men east of Worcester. We shall probably get them before our next annual dinner.

So, when forty lusty and husky boys assembled in Massasoit's big wigwam, we felt that we had not printed in vain. The committee had a program that made the Keith Circuit look like the grand concert after the one-ring circus. We got it without bloodshed, but at one time it seemed as if gore must flow. We waited on a vast and opulent theatrical magnate, and humbly presented our needs. After a week's sleepless consideration his nibs favored us with a boon. He would consent that two stars should be temporarily detached from his galaxy, and shed their radiance on us for exactly thirteen long minutes for the trifling sum of forty dollars each. We kotowed, and withdrew and smiled. Then we rounded

up the autos of the M. I. T. men who live in luxury, called at the hotel of the aforesaid stars, gave them and pretty nearly the whole universe a scorching ride, a big feed at the club, and gently and soothingly presented them the opportunity they were clamoring for; to wit, to perform before us. Result: Eddie Leonard, he of Barlow, Wilson, Primrose, & West, colaborer of Lew Dockstader and many another immortal, took the whole matter in hand, and right here let us say that, if any Tech man this side of Jordan meets Eddie Leonard and doesn't embrace him as a brother, may his sons flunk at the first semi and wear no manner of sheepskin inscribed "M. I. T." Besides, if you don't do it, you'll lose a lot of fun, for Eddie Leonard is all there. We had a vaudeville show that turned the magnate deep green when he heard of it. We had nine-tenths of his entire cast, and the other one-tenth wept with the magnate, but for a different cause.

Speeches there were, songs there were, and (here's a royal cup to him!) we sang "'Tis always fair weather when good fellows get together," with merry Bullard in our hearts; and may he have heard, and been gladdened thereby! We didn't have any of the Faculty with us this year. We sent an official statement of the pace record required for entrance, and none of them could qualify. But—may his speed never grow less!—Eben S. Stevens, of Quinebaug, Conn., youngest man on the Corporation of the M. I. T., whatever his years, was there. He was the best fellow in all that goodly circle, and he made a speech so chockful of sense, humor, fun, love for M. I. T., and good cheer generally that he was cheered to the echo, and "'Tis always fair weather" was sung in rousing chorus in his honor.

Everybody had a grand time, and the next time we send out our birch-bark announcing a peace dance we anticipate that the reservation will be emptied from between the waters north and south, and from here to City Point. You'll be welcomed, feasted, toasted, tagged, and sent home. And blissful and abundant will be your memories.

Following are the names of the braves who assembled at the M. I. T. feast: Eben S. Stevens, '68, George L. R. French, '84,

Woodman S. Page, '85, Frank H. Page, '86, N. P. Ames Carter, '87, Guy Kirkham, '87, George L. Munn, '88, Paul R. Hawkins, '89, Edmund P. Marsh, '89, Darragh De Lancey, '90, S. Ellsworth Horton, '90, Moses Lyman, Jr., '90, Clarence E. Whitney, '91, Oren E. Parks, '93, H. W. Morrill, '93, N. W. Dalton, '94, Harry G. Fisk, '96, Edw. F. Smith, '96, Frederick W. Fuller, '97, Howard H. Burdick, '97, Charles L. W. Pettee, '97, Charles S. Murlless, '98, George L. Harris, '01, Fred. N. Fowler, Jr., '02, Ernest W. Pelton, '03, Elbert E. Lockridge, '03, H. P. Maxim, Charles F. Barrett, '04, A. M. Holcombe, '04, W. T. Keen, '04, Frederick W. Farrell, '04, E. O. Hiller, '04, John D. McQuaid, '04, Albert W. Nichols, '04, Frank S. Farrell, '05, Burton E. Geckler, '05, John H. Fellows, '06.

EDMUND P. MARSH, '89, *Chairman*,
P.O. Box 791, Springfield, Mass.

THE TECHNOLOGY CLUB OF PHILADELPHIA

From the *Tech*:—

PHILADELPHIA, April 4.—Dean Burton spoke at the dinner of the Philadelphia Technology Club, held this evening at the Flanders at 7.30 o'clock. His subject was "Progress in Tech Student Interests during the Last Five Years." He told of the development of student life during that time, paying especial attention to some new institutions that have recently sprung up.

Professor Burton was warmly received by the Tech graduates, of whom there were about forty-five present. The other guests at the dinner were Dr. James T. Young, dean of the Wharton School at the University of Pennsylvania; Hon. Charles E. Smith, editor of the Philadelphia *Press;* S. M. Vauclain, of the Baldwin Locomotive Works; and Major Cassius E. Gillette, chief engineer of the Philadelphia Filtration Bureau.

WASHINGTON SOCIETY OF THE M. I. T.

The society has had three regular (and one special) meetings during the past three months at its regular headquarters, the University Club, 930 16th Street, N.W., each meeting being preceded by the usual informal dinner. It is intended to continue the

regular meetings on the second Monday of the month throughout the summer.

The meeting of April 8 was unusually well attended, and listened to an extremely interesting talk by Mr. F. F. Longley, bacteriologist of the Washington Aqueduct Filtration Plant, who explained in full the construction and operation of the new plant for the purification of the city water supply from the Potomac River by sand filtration. The talk was illustrated by about sixty lantern slides covering all the features of the water system, including the aqueduct tunnel, the Washington reservoir, and the filter system proper, consisting of twenty-nine beds, each one acre in extent and filled with sand to a depth of three to four feet. The method of "scraping" the tops of the sand beds and washing the sand thus removed by apparatus specially devised for this plant was particularly described. The plant was shown to have been very successful in removing the considerable amounts of suspended clay, and all but a very small percentage of the bacteria existing in Potomac water.

A special meeting of the society was held on April 22, at which time one of the members, Mr. François Matthes, '95, just returned from the West, gave a finely illustrated talk on "Experiences of a Two Years' Campaign in the Grand Canyon of the Colorado." During the time referred to Mr. Matthes completed an extensive survey of the canyon, obtaining the measurements of its almost infinite topographical details by rapid original methods, in many cases under great difficulties on account of the inaccessibility of certain parts of the great gorge.

At the meeting of May 13 Mr. Leroy E. Kern, '02, of the Supervising Architect's Office, recently returned from the Philippine Islands, gave the society the benefit of his observations on architecture and engineering in the islands during several years' stay there in the government service at Manila, illustrated by a number of photographs. The talk was of particular interest as touching, in many ways, on general conditions of life and "the white man's burden" in the Philippines.

F. W. Swanton, *Secretary*,
1641 13th Street, N.W., Washington, D.C.

CINCINNATI M. I. T. CLUB

The informal noon-day lunches held Tuesday of each week by the Cincinnati M. I. T. Club have been quite successful during the last two months. Ten or a dozen men are usually present, and a very pleasant social hour is spent. The officers of the club feel much encouraged by the awakened interest.

J. W. ELLMS, '93, *Secretary*,
East Court and Martin Streets, Cincinnati, Ohio.

TECHNOLOGY CLUB OF NEW BEDFORD

The final meeting of the season of the Technology Club of New Bedford was held at the home of E. H. Wing on Thursday, May 2. There were eleven present. We were pleased to welcome ex-President Tillinghast, who had just recovered from a serious illness. The club entertained Mr. Clifford Wade, Tech, '08. The subject was broached of holding a midsummer meeting of the club on some of the boats of the members, and taking a moonlight sail about the bay.

Pierce, '93, Swan, '97, Robinson and Wing, '98, attended Tech Night at the Pops on June 4.

CHARLES F. WING, Jr., *Secretary*,
34 Purchase Street, New Bedford, Mass.

TECHNOLOGY CLUB OF NORTHERN OHIO

President's Message

REPRESENTATIVES: EXECUTIVE MANSION, January 17, 1907.

T. C. of N. O.

Some months ago one Wallace cornered me with the information that the electoral college men of the M. I. T. had returned a majority in favor of yours gratefully, and that the office of president of their society, together with all perquisites, requisites, honors, and obligations therewith, was mine to have and to hold as long as said M. I. T.'s would stand for it.

Some inaugural ceremony seems fitting, and, as a Ball won't do, the Cabinet, at the suggestion of the Secretary of the Interior, has decided upon a dinner, and does now proclaim, announce, and call for full representation

from all districts at the University Club at 6.30 P.M. on the evening of Friday, January the 25th.

Members are urged, requested, and hereby ordered to be on hand at that time, and may travel on free passes, clergyman's ticket, or 3c. Tomcon, so long as they arrive safely with $1 for the Secretary of the Treasury, which will defray, pro rata, all expenses incidental to the session.

Arrangements have been made with the Hon. Secretary, and he has finally consented to accept your check for $1, or you can mail postage stamps and street-car tickets,—in any event, he wants to know right off who's coming. Please reply to him direct and quickly, that your president may try his new "big stick" on those who think they can't come.

I could write more, but Metcalfe (not Victor, but Frederick) says this is too much.

I have the honor to be, Gentlemen,

Yours Executively,

THE PRESIDENT.

N.B.—By special arrangement with the Department of Agriculture, Motch, E. R., will blossom forth in song; but Wallace has promised to keep still, as his voice is arid and uncultivated.

N.B. No. 2.—Honored professors, committees from headquarters to solicit funds for the Institute, and other diplomats cannot be listened to during this session.

FRANKLIN B. RICHARDS, '84,
President.

SIDNEY Y. BALL, '03,
Secretary.

A very enthusiastic meeting of the Technology Club of Northern Ohio was held at the University Club on the evening of January 25. Thirty members were present, including several from near-by towns, and under the able leadership of President Richards everything progressed hummingly from the start.

We sat down at two tables arranged to form the letter "T," and quickly disposed of a home-style dinner. Very soon after the cigars had been passed, the president arose, and announced that he intended to conduct an experience meeting.

The affair progressed in good "Methodist" style, and from Sheridan and Wallace to Handy and Ritchie every last one of us,

whether we liked it or not, had to get up and tell the rest of us his personal career from Commencement Day right up to the dinner time.

Of course, we were all very modest, and probably the half of our accomplishments was not related, but what we did tell served to make every one feel well acquainted, and we dispersed reluctantly, promising ourselves another gathering very soon.

S. Y. BALL, '03,
Ball Building, Cleveland, Ohio.

THE PITTSBURG ASSOCIATION OF THE M. I. T.

The Pittsburg Association is the outcome of a gathering of Tech men held in this city last April. C. T. Bartlett and P. B. Stanley, both 1906, succeeded in collecting about thirty of 1905 and 1906 men at the Hotel Duquesne on April 28.

After recovering from our surprise at seeing so many familiar faces, we realized the benefits to be derived from an association of all the classes. A committee was appointed to confer with the local alumni organization, which, they found, did not exist. Upon the advice of Mr. C. A. MacClure, '94, the sole survivor of the former association, his visitors evolved into an organization committee, and proceeded to work. The old association, inactive for several years, was declared extinct, and notices were sent out to all available addresses in the vicinity of Pittsburg.

About fifty men met at the University Club on the evening of April 4. The meeting was called to order by Mr. MacClure, who was elected temporary chairman. Mr. MacClure gave a history of the organization, its rise and fall, and rejoiced at the interest displayed by the younger men, upon whom, he said, depended the success of the new association.

A very liberal constitution, allowing membership to any one ever connected with the Institute as student or instructor, was adopted. Officers were elected as follows: L. K. Yoder, '95, president; S. B. Ely, '92, vice-president; Waldso Turner, '05, secretary-treasurer; W. I. Bickford, '01, and P. B. Stanley, '06, members of executive committee.

After the other routine business of organization was finished, the formal meeting adjourned, and everybody indulged in a general hand-shaking and in recalling amusing reminiscences.

Mr. Ely was the chief entertainer of the evening, showing some feats in legerdemain which would convince one, without other information, that he had missed his calling.

On April 4, the executive committee entertained Dr. Pritchett at dinner at the University Club on the occasion of his visit to Pittsburg to represent the Institute at the dedicatory exercises of the enlarged Carnegie Institute. Among the invited guests were the following friends of Dr. Pritchett: Professor J. A. Brashear, of the Carnegie Institute; Dr. McCormick, of the Western University of Pennsylvania; Dr. H. D. Lindsay, of the Pennsylvania College for Women; Mr. Julian Kennedy, Mr. F. T. McClintock, and Mr. C. A. MacClure.

Following the dinner some of the guests were driven to the Carnegie Music Hall, but Dr. Lindsay honored us by remaining to the reception which was held by members of the association.

Dr. Pritchett met all the men personally, and remembered many whom we had known at Tech. He gave a very interesting talk later in the evening, lucidly describing his trip to the Panama Canal Zone, and very forcibly showing that closer relation among the alumni is essential to the growth and welfare of the Institute under the new conditions. His description of the recent changes at Tech was exceedingly interesting, especially to the older men.

Dr. Lindsay responded with an enjoyable talk on college organizations.

Mr. MacClure's explanation of the distinction between professional and commercial men was not a little consoling to Tech men, who know the vast difference between the wealth of the Institute and that of other educational institutions.

The evening concluded with music, a buffet lunch, and a large amount of sociability.

While we consider ourselves the youngest association, we believe we have the enthusiasm and available material to make it one of the strongest. There are approximately one hundred and seventy-

five Tech men within a radius of fifty miles of Pittsburg, and the majority of them are from the more recent classes, showing that this district is becoming more popular each year.

We would like to confer with other similar organizations in regard to bringing the alumni of Technology into closer relations, and are very anxious to have information concerning new men in this vicinity.

WALDSO TURNER, *Secretary-Treasurer*,
1173 Frick Building Annex, Pittsburg, Pa.

NEWS FROM THE CLASSES

1868.

PROF. ROBERT H. RICHARDS, *Sec.*, Mass. Inst. of Tech., Boston.

The dinner and Pop Concert proved an extremely interesting occasion to the class of '68. We had present on the occasion Messrs. Stone, Stevens, Forbes, Hoyt, Whitney, Jackson, Fillebrown, Tolman, and Richards. Of these Stone was absent from the Pops and Whitney was absent from the dinner. This is the largest gathering of the class of '68 that we can recall since the day of graduation. The boys all enjoyed talking over old times, and it proved an extremely interesting occasion. Forbes said that he had not met Hoyt since '68, and they had to be introduced to each other. —Robert H. Richards is at Randolph, N.H., near Mount Adams, writing the appendix to his book on Ore Dressing.

My dear Bob,— . . . Last winter I again made a trip to Mexico to visit my daughter for a couple of months, and was very much struck with the enormous development of the country, which is carried on, principally, by foreign capital. For example, the Necaxa Falls, which dash over a precipice 1,500 feet high and situated ninety-five miles from Mexico City, have been developed giving 200,000 H.P. under a 1,400 foot head developed by Pelton wheels of 8,000 H.P., which generate electricity of 60,000 volts. This current is carried on iron tripods fifty feet high, by means of one-half inch copper cables, and is distributed in Mexico City, Puebla, Pachuca, and El Oro, the two latter being large mining and smelting towns. This current is used for lighting, running the electric railways and power of all kinds, and is sold at much more moderate prices than in Boston, which greatly aids development, as all fuel in Mexico is very scarce and high.

The climate there is simply perfect, being October weather the whole year through, with a temperature from fifty degrees to seventy degrees, and rain only late in the afternoons of the summer months. It certainly is a delightful climate to live in.

President Diaz, one of the most able rulers the world has seen, fearing that Harriman and others might gobble their railways, as is being done in the States, simply took over the roads for the government, paying for the majority of the stock by bonds guaranteed by the government, and, although the railways are run by an organization elected by the stockholders themselves, they are always subject to the control of the government, and no outside influence can ever control the majority of the stock.

I am looking forward to spending another winter there with a great deal of pleasure. Sincerely yours, JOSEPH STONE.

1874.

CHARLES F. READ, *Sec.*, Old State House, Boston.

Several members of the class attended the various exercises on May 31 and June 4. The class was well received at the Pop Concert in Symphony Hall, and it did its share of the jollification. —Colonel Samuel P. Colt has retired from the senatorial contest in Rhode Island.—The president of the Class Association, George H. Barrus, and wife are making a short visit to London and Paris.—Charles D. Austin, now residing in the West, has been in Boston lately, and called on the secretary.

1876.

JOHN R. FREEMAN, *Sec.*, 235 Arlington Avenue, Providence, R.I.

Nine members of the class of '76 showed up in the Commencement season at the dinner of the old classes at the Vendome, and subsequently at the Pop Concert. '76 now has three members on the Corporation; namely, Copeland, Main, and Freeman. These were all present, as were also Prichard, Galloupe, Crosby, Hapgood, and

Shillaber.—L. M. Davis was detained by the arrival of a new daughter, but looked in on some of his Eastern friends a few days later. The telephone and electric light business at Minot, N.D., of which he is general manager and one of the principal owners, is sharing in the rapid growth of this lively town of the North-west. He reports business as very prosperous.—Main is another of those who is almost suffering from excess of prosperity. He said he had about thirty construction jobs under supervision from his office. On the first of the year he dissolved his former partnership, and established new offices at 45 Milk Street. His son Charles, who graduated from Dartmouth this year, will, probably a little later, become associated with the business of the office.—Prichard is president of the American Gas Light Association, and his son, who graduated from Tech not long ago, is following in his father's footsteps, being now manager of the gas-works at Beverly. Prichard is still general manager of the Lynn Gas and Electric Company, and his services as consulting gas engineer are much in demand in various parts of New England.—Freeman has recently returned from the Isthmus of Panama, where he was one of the board of engineers appointed to investigate the foundation for the locks and the dams of the Isthmian Canal.—Crosby has retired from active teaching, on the Carnegie Foundation, but will remain connected with the Institute as Research Professor. He continues consulting geologist for the New York Board of Water Supply, and will spend a portion of the present summer in Alaska, continuing his studies on some of the special problems that have engaged his attention each summer for seven years past.

1877.

RICHARD A. HALE, *Sec.*, Lawrence, Mass.

At the reception to the graduating class by the alumni the class of '77 was represented by A. L. Plimpton, who made remarks on the art of living, and presented the class with a treatise on that subject, and also a pair of large field glasses with which to view their

future careers. Other '77 men present were Kittredge and Hale. At the Commencement reunion '77 joined with the earlier classes in the class dinner. Bradford, Davis, Gray, Gowing, Sherman, and Hale were present at the dinner and Pop Concert. No special observance of the thirtieth anniversary of graduation was arranged. —Hallett, '77, of Butte, Mont., is an enthusiastic mountaineer. He is an ex-president of the Rocky Mountain Club, and discovered a large glacier in Colorado, known as Hallett Glacier, at which time he nearly lost his life by falling into a crevasse. One of the lofty peaks in Northern Colorado bears the name of Mount Hallett in recognition of his activity. A book published by the Appalachian Mountain Club on Mountaineering in Colorado, by Herbert Chapin, contains an interesting description of Hallett's work in this direction.—A son of Sherman is a graduate of Course I., class '06, and is connected with the New York Water Supply Commission, engaged in engineering work.

1882.

WALTER B. SNOW, *Sec.*, 29 Russell Avenue, Watertown, Mass.

The twenty-fifth reunion was celebrated in accordance with the following program: June 3, harbor trip for members and ladies. Class dinner in evening. June 4, outing for members and families at Norumbega Park. Pop Concert in evening. Sixteen were present at the dinner.—Ayer is now president of the Eastern & Western Lumber Company, Portland, Ore.—Cheney has been busy as a member of the Connecticut legislature.—Mrs. Clark (Miss Rice), of Los Angeles, Cal., expected to attend the reunion.—Cochran is still abroad, his last letter being dated at Berlin, and expects to remain during the summer.—Rufus F. Herrick is now located at 2 Kilby Street as consulting chemist, with denatured alcohol as a specialty. —Special features of the reunion were the selection of class colors and the development of a class cheer,—object-lessons to older classes without these essentials of organization.

1883.

HARVEY S. CHASE, *Sec.*, 27 State Street, Boston.

Capen has finished a new patent leather factory at Canton Junction which will triple his previous output. He has a son preparing for Tech and expecting to enter in 1909.—Underwood has recently been at Des Moines, Ia., fitting up a new factory for manufacturing glue in connection with the independent packers.—Smith has a specific for the whooping-cough. Has tried it on three children, and they survived. Will now hire both Capen's and Underwood's new factories and manufacture the compound. Wants good agents. Members of '83 preferred. (Received by wireless.)—Gale, '83, has again taken up the business of electric heating in which he was interested ten years ago, and is now chief engineer of the Simplex Electric Heating Company, with headquarters in Cambridgeport, and living at Natick.—"Herbert Tyler Bardwell, forty-seven years old, well known as a civil engineer, died suddenly April 10 of heart trouble and complications in the home of his parents, Francis M. and Lucy Tyler Bardwell, 91 Woodside Terrace, Springfield, Mass. He had been in poor health for some time. Mr. Bardwell was born in Belchertown, Oct. 27, 1859, and moved to Springfield when a young man. He was educated in Wesleyan Academy, Wilbraham, and at the Massachusetts Institute of Technology, where he was graduated with the degree of B.S. in 1883. He was subsequently connected with the Holyoke Water Power Company and the West End Street Railway Company of Boston, and for three years was instructor in civil engineering in the Massachusetts Institute of Technology. Owing to ill-health, he had not been active in his profession for several years. He was a charter member of Technology chapter, Sigma Chi fraternity. Besides his parents he leaves a brother, Arthur E., and two sisters, Marian E. and Lucy L. Bardwell, all of this city."

1884.

PROF. WILLIAM L. PUFFER, 207 Equitable Building, Boston.

Reported by Dr. Gill in absence of the class secretary: "I saw Damon at the Technology Club on graduation day. He is in New York, where he has been for the past eight years, with the Northwestern Life Insurance Company.—Holder came to the alumni reception, and, judging by his looks, time has dealt with him kindly. He reports that he is now in better health, and expects to take more active interest in M. I. T. and class matters.—Tyler has been taking lessons in carpentry, and is assisting in building himself a summer cottage on Lake Winnipesaukee.—Du Pont was at the Pop Concert, looking as well as in the old days."

1886.

PROF. ARTHUR G. ROBBINS, *Sec.*, Mass. Inst. of Technology, Boston.

Following the custom established at the reunion, the classes of '85, '86, and '87 dined together on the evening of June 3, and afterwards attended the "Pops" in a body. The '86 men present were Anthony D. P. Bartlett, Borden, Chase, Cobb, Cutter, Locke, Miller, Noyes, and C. C. Peirce.—Locke has recently had the enviable distinction to be appointed president of the Boston Young Men's Christian Union, to succeed Mr. William H. Baldwin. He leaves the Boston Rubber Shoe Company July 1, and assumes his new duties in September.—Noyes receives recognition of his ability as an educator in his appointment as temporary president of the Institute,—a distinction which comes to a graduate for the first time in the Institute's history.—Since June 3 the secretary has been at Rangeley, Me., looking after twenty-seven students of the Civil Engineering Department who are taking their summer course in surveying.

1888.

Wm. G. Snow, *Sec.*, 1108 Penn Mutual Building, Boston.

The annual class dinner took place at the Copley Square Hotel on the evening of June 4. Members present: Sawyer, Holman, Blanchard, Baldwin, Williams, Snow, Runkle, Pierce, Sjöström, Wood, Collins, and Gage. A. H. Sawyer was re-elected president. Plans were discussed for a field day in June, 1908, to celebrate the twentieth anniversary of the graduation of the class. At the Pop Concert where the class reassembled after the dinner, in addition to those mentioned above, Stone and Stetson were present.—E. S. Webster and family are spending the summer abroad.—On May 1 Binney moved his law office to 2 Rector Street, New York. He is associated with Messrs. Brickenstein and Ogden under the firm name of Binney, Brickenstein & Ogden. Judge Brickenstein, a Princeton man, was for about ten years presiding examiner in chief on the Board of Appeals in the Patent Office. Mr. Ogden, a Cornell man, also of Washington, has been associated with Binney for the past five years. Aside from his professional work, Binney's classmates will be interested to know of his participation in the ocean race to Bermuda in June in his 52-foot schooner, the "Mist," of which he was the navigating officer. The start was made from Gravesend Bay, New York, at 10.35 A.M., June 5. On June 11, at 12.36 P.M., the "Mist," the smallest yacht in the first division, crossed the line in the harbor of Hamilton, Bermuda, having made a fine showing for a boat of her size.—Frank O. Stetson has resigned from the Weather Bureau, with which he has been connected for a number of years, and has become associated with Stone & Webster. He resides in Newton, Mass.—James S. Newton has become a resident of Chestnut Hill, Mass., having purchased an estate located near Boylston and Hammond Streets.—Other '88 men who reside in this attractive suburb are Webster, Bradlee, Baldwin, and Sabin.

1889.

PROF. W. E. MOTT, *Sec.*, Mass. Inst. of Technology, Boston.

Owing doubtless to the omission of the class dinner, the attendance of '89 men at the Pop was very small this year. But three men appeared.—Linzee is engaged upon plans for rebuilding the City Square station of the Boston Elevated Railroad.—Whipple has been appointed one of a board of consulting engineers to investigate and report upon a water supply for the city of Winnipeg, Canada.—H. L. Davis reports a quiet but strenuous life with the American Bridge Company, 42 Broadway, New York.—The secretary has received a few widely differing views in regard to the question of holding annual class dinners, and would be glad to hear from many more members of the class, both as to frequency and time of holding such dinners. His address from July 8 to August 17 will be care Columbia University, New York City.

1890.

GEORGE L. GILMORE, *Sec.*, Lexington, Mass.

The following changes of address have been noted since the last issue of the REVIEW: Mr. J. L. Batchelder, Jr., 10 Post-office Square, Delta Building, Boston.—Mr. F. L. Chase, 821 Columbus S. & T. Building, Columbus, Ohio.—Mr. N. G. Nims, 9 Livingstone Avenue, Yonkers, N.Y.—Mr. E. H. Brownell, Navy Yard, New York.—Mr. C. H. Alden, 604 Missouri Street, San Francisco, Cal.—Mr. B. H. Mann, 7th and Market Streets, St. Louis, Mo.—Mr. George W. Stone, who was a special in the class, is at 1753 Park Row, Washington, D.C.—Mr. Frank L. Packard, Hayden Building, Columbus, Ohio.—Mr. Cabot J. Morse, of Parker, Morse & Co., has recently returned from a tour of inspection of the Bingham Mining Camp.—Mr. Charles Hayden sailed for Europe April 27 for a short stay.—Mr. George A. Packard, who on the 1st of January took charge of the Metallurgical Department of the State School of

Mines at Rolla, Mo., has evidently made a good impression among the students as well as making them toe the line, as the following notes which appeared in their annual *Technique* will show:—

If in the future we fail "to make good,"
Say not 'tis the joiner, but say 'tis the wood,
We hold up our hands and swear by him still,
Mr. Packard, our mentor, always has our good will.

Your whiskers, Prof. Packard, are just a perfect love,
But all the hair that you have there is needed up above.

From the "Rollamo."

—From the Boston *Herald*, Feb. 5, 1907:—

The action of Atherton Loring, of Brookline, vice-president of the Library Bureau, against Herbert E. Davidson, of Watertown, president, and William E. Parker, of Newton, treasurer of the concern, for $350,000 damages for their alleged breach of contract with him, was entered in the Superior Court for Suffolk yesterday.

He declares that he became associated with them in 1897 for the control and management of the Library Bureau, a corporation of this State, and that he bought $25,000 of its stock. He claims that, under personal agreements made with him, he became entitled to receive from their holdings 4,500 shares of the common stock of the Library Bureau, a New Jersey corporation, which succeeded the Massachusetts corporation in the business. He alleges that they have failed to give him those shares.

—George E. Hale has recently received the honorary degree of D.Sc. from the University of Manchester, England. He has been on a flying trip from Mt. Wilson, Pasadena, to the continent to attend the meeting of the Solar Union at Paris, and the meeting of International Association of Academies at Vienna.

1892.

PROF. W. A. JOHNSTON, *Sec.*, Mass. Inst. of Tech., Boston.

The fifteenth annual dinner of the class was held at the Copley Square Hotel, June 4. The following men were present: Chase, C. H., Curtin, Derr, Fairfield, Fuller, Hall, Heywood, Johnston,

Kales, Locke, Manley, Park, Pettee, Pierce, Potter, Sargent, Skinner. The following officers were elected for the ensuing year: president, Leonard Metcalf; vice-presidents, John A. Curtin, J. Scott Parrish; secretary-treasurer, William A. Johnston; assistant secretary-treasurer, Lewis P. Cody. After the dinner about one hour was spent in listening to brief statements of some of the experiences that the different men have had since leaving the Institute. Kales, who has not visited the Institute since his graduation, presided as toastmaster. In response to the secretary's request for a written statement from the men who could not be present at the dinner, some of the replies are as follows: Andrew K. Robertson, of Glasgow, writes:—

Sorry I cannot be present, but Boston is a long way off from Glasgow. I have no news about myself which would interest you at present, at least I can think of none. Hope to have something interesting soon.

—W. H. Woofindale, of North Adams, writes:—

It was my intention to be with you on the 4th, . . . but . . . I have been obliged to defer my visit to some future date. However, I have done the next best thing, and allowed my assistant to attend his class's tenth celebration. . . . Please present my regards to all hands, and remember me particularly to any of the chemical crowd who may be present, and, wishing you all a grand and glorious old time, I am, etc.

P.S.—The past five years I have been with the Arnold Print Works, and that means work.

—Albert A. Pollard, whose address is 1620 Chemical Building, St. Louis, Mo., writes:—

It gives me rare pleasure to hear from Tech. Although we hear of it often in St. Louis, and there are many Tech men of the State, I know of none in St. Louis save two in our office and one in our building, and only two others in the State, both at Kansas City.

I am with Mauran, Russell & Garden, architects, and am glad of this experience in the Middle West. It seems a good one for whatever is likely to follow.

I would thank you to put me in way of local Tech news and men. Please say my word of greeting to any '92 men who may inquire for me.

—Frederick L. Rhodes, who is engineer with the American Telephone and Telegraph Company, writes, *en route*, via New York Central, Boston & Albany, and Michigan Central Railroads:—

Am sorry that a "hike" to Chicago will prevent me from seeing you and the rest of the fellows at the class festivities.

—J. Scott Parrish writes from Richmond, Va.:—

I greatly regret that, owing to business matters, it will be impossible for me to be present at the fifteenth annual meeting and dinner. The fact is, I am this year playing the part of a real Virginia colonel, and between balls, highballs, and baseballs, I am kept very busy at all moments.

P.S.—If an inventory is taken of the children, give me credit for two,—a girl six years and a boy eight months.

—Francis Walker, who is a special examiner, Bureau of Corporations, Department of Commerce and Labor, writes:—

I am sorry that I cannot get away from my work here to attend the class reunion, as I should enjoy very much meeting my classmates again. I keep track of them, however, as well as I can, through the REVIEW. Since coming to Washington, I have been brought into close touch with M. I. T. through the local alumni society, but I believe I am the only '92 man in the bunch. I do not believe I have anything especially interesting to contribute in the way of news. I quit the academic life about five years ago, and after spending a little over a year in Germany, studying the combines, especially the coal syndicate on which I wrote a book, I returned to the United States, and continued my studies along the same lines in the United States under the Bureau of Corporations. The poet has complained "What's the use of busting the trusts, if the trusts won't stay bust?" and I fancy that is the general complaint. Whether it is our business to bust the trusts or not, I leave to one side, but can assure any one that is interested that we are doing our little darndest to get the facts. About two years ago the government gave me a little five months' trip to Europe in connection with the business of the Bureau, which took me to about ten European countries, including Russia and the Balkans.

—W. E. McCaw, president of the McCaw Manufacturing Company, Macon, Ga., writes:—

Many thanks for your note of the 3d inst. A few months after leaving Tech, I interested some New York and local capital in the building of the McCaw Manufacturing Company, which concern is engaged in the manufacture of different products from cotton-seed, such as laundry soaps, compound lard, plantene (similar to cottolene), and crude cotton-seed oil as well as the various grades of refined oil. We have a little over a million and a half dollars invested in the business, and distribute our goods throughout the United States east of the Mississippi River, and our refined oil throughout Europe. I find the business exceedingly interesting, as it is only a comparatively few years ago when the cotton-seed were thrown away as being of no value. The future prospects of the business are almost unlimited, as the products are of such a nature that you can ship them almost anywhere.

—F. H. Meserve, who is connected with the commission house of Deering, Milliken & Co. of New York, writes:—

I have for the last fourteen years been connected with a New York commission house in the manufacture and sale of woollens and cottons, and am treasurer and director of several woollen mills in New England.

I am married, and have two girls, six and three years old. I am a member of the Military Order Loyal Legion and the Quill Club of New York.

—J. P. Lyons, who is at Hanover, Conn., writes:—

Answering your personal appeal for a letter to be read at the annual '92 dinner regarding the work I have been doing during the five years just past:—

The first two years of that time were spent in the estimating department of the American Car and Foundry Company at New York. The work was similar to that in every office of that nature,—figuring stresses to such an extent as may be necessary to determine size of members, preparation of a small scale plan elaborate enough to fix the different pieces of material in the car and to scale their lengths, writing the estimate (which consists of an itemized list of everything entering into the complete car), writing the summary sheet which shows the total quantity of each kind of material, its price and total cost of material in the complete car, estimated cost of labor, and a charge for general expense and delivery, finally the total cost of the car to the company, which serves as a basis for determining the selling price. Inasmuch as the railroad companies are making every effort to reduce the dead weight of their trains, and inasmuch as the work

usually had to be done in the shortest possible time, it offered splendid opportunity for the exercise of engineering skill and ingenuity in the preparation of the designs and of a quick, clear-thinking brain in the preparation of the estimate itself.

For the last three years I have been working on a farm here in Hanover. The work is nothing different from that usually found on a place that keeps six milch cows, one yearling heifer, three horses, one two-year-old colt, and from seventy-five to one hundred chickens. However, I will say that, if there is any truth in the saying that "variety is the spice of life," the farmers do not have to depend on the isles of the sea for the wherewithal to season their food. They get it in sufficiently large quantities from the variety in their daily work. To have seven or eight jobs in one day is by no means uncommon, and, when one realizes that the chores have to be done on Sunday as well as on other days of the week, in addition to an opportunity to drive to the village to attend two sessions of two hours each at the church, returning for dinner between the two, it is not hard to see that the farmer not only obtains his seasoning, but his rest also from his various activities.

It has been my fortune to do the peddling, as we call it, for nearly a year, and, as our customers comprise Americans, Scotch, Irish, French, Germans, Swedes, and Polanders, you can imagine I have had an experience the Department of Languages would do well to envy. If Professor Luquiens, Dr. Dippold, or Professor Van Dael, could listen to my "Parlez-vous français?" and "Sprechen Sie Deutsch?" they would feel sure that the modern languages I received some seventeen or eighteen years ago did not rest very heavily on my mind, for my attempts at speaking the foreign language usually end in a resort to the primitive method of communication; namely, the sign language. This, strange to say, is usually effective so far as selling my wares is concerned, which, after all, is what language is for, anyway.

However, I have seen young men and women, mill hands, who probably never attended school a day after the age of fourteen was reached, when the Connecticut State law allows children to work in the shops, and whose parents can scarcely make themselves understood in English, speak our language as fluently and with as correct an accent as any native-born American. I wonder if American boys and girls, if placed under similar conditions in France or Germany, would make as good a showing in learning the foreign language as do the foreigners who come here.

1893.

FREDERIC H. FAY, *Sec.*, 60 City Hall, Boston.

Life, enthusiasm, and good-fellowship prevailed at the annual dinner of the class at the Hotel Brunswick on the evening of Commencement Day, June 4. President Pritchett, honorary member of the class, and Bursar Rand, who became a member by adoption at the Tech reunion, were our guests, and, while there was no formal speaking, both of these members contributed much to the enjoyment of the evening. One other honorary member, Fred Parker Emery, who taught us English in our Freshman and Sophomore years, and who was the most popular instructor of the class in our whole college course, was, unfortunately, unable to leave his work at Dartmouth to come to the dinner; but, in his letter of regret which was read at the table, he says, "Please tell any classmates who may chance to inquire for me that my heart still beats true to M. I. T., particularly to its spirit as embodied in the class of '93."—Plans for the celebration of our fifteenth anniversary, next year, were freely discussed, and it was voted that another catalogue of the class be published in 1908. Henry Morss, our first vice-president, and Sam Braman could not be present, owing to the fact that the following morning they were to sail from New York on Morss's schooner yacht "Dervish," in the ocean race to Bermuda; but Morss's loyalty was proven by a check (with amount left blank) which he sent for use in the entertainment of the class at the dinner. Just how much the result of the race was influenced by the several toasts that were drunk to his success cannot be proven; but, at any rate, in due time the "Dervish" won, and once more '93 "led all the rest." (However, as Kipling says, that's another story, and will be told elsewhere.) At about half-past eight the class adjourned to the Tech Night Pop Concert at Symphony Hall, where, as usual, beneath '93's historic orange and black banner we had the honor of escorting the President, and the Bursar as well, upon the floor. The class officers were re-elected as follows: Leo W. Pickert, president;

Henry A. Morss and George B. Glidden, vice-presidents; Frederic H. Fay, secretary-treasurer; Grosvenor T. Blood, assistant secretary. Besides Dr. Pritchett and Bursar Rand the following members were present at the dinner or the Pop, or both: Bemis, S. A. Breed, Blood, E. B. Carney, Cook, Dawes, Fay, Glidden, Hopewell, Howland, Keith, F. B. Kendall, Latham, W. B. Page, Pickert, J. H. Reed, Reynolds, Sayward, Tucker, Wilson, Wingate.—Franklin G. Ashton is the south-western agent of the Union Switch and Signal Company at 544 Frisco Building, St. Louis, Mo.—Frank S. Badger is first assistant engineer of the Compania de Agua y Drenaje de Monterey, S.A., his business address being Apatardo 291, Monterey, Mexico.—George S. Barrows is connected with the Kansas City Gas Company, his office being at 910 Grand Avenue, Kansas City, Mo.—James C. Boyd is mechanical engineer with Westinghouse, Church, Kerr Co., 10 Bridge Street, New York City.—Charles E. Buchholz is engaged in the wholesale coal business at Watertown, Jefferson County, N.Y.—Dale Bumstead is located at 1523 Masonic Temple, Chicago, as manager of the E. I. du Pont de Nemours Powder Company, of which Connable of '93, is general manager. Bumstead lives at 170 North Taylor Avenue, Oak Park, Ill.—Frank L. Connable is general manager of the E. I. du Pont de Nemours Powder Company at Wilmington, Del.—Courtland R. Darrow has recently been appointed highway commissioner of New London, Conn.—Samuel D. Dodge, assistant engineer with the Board of Water Supply of New York, is located at Cornwall-on-the-Hudson, N.Y.—James A. Emery, vice-president and general manager of the Birmingham (Alabama) Railway, Light, and Power Company, was visiting friends in Boston and vicinity in June.—Clarence D. Gilchrist is the supply agent of the Pittsburg & Lake Erie Railroad Company at Pittsburg, Pa. Gilchrist's home address is Parkersburg, W. Va.—John Fred Hinckley and Mrs. Emilie Louise Lodge, of New York, were married at Brooklyn on the 14th of June. Mr. and Mrs. Hinckley will reside at 550 East Seventh Street, Brooklyn, N.Y.—Frederic Hale Keyes and Miss Annie Claflin Ellis, daughter of Mrs. Charles Warren Ellis, of Newtonville, Mass., were married on Thursday, June 27.—Walter

W. Patch, constructing engineer with the United States Reclamation Service, is at present located at Orman, Butte County, S. Dak.—Charles M. Taylor is draughtsman in the Bureau of Construction and Repairs at the Charlestown Navy Yard, Boston. Taylor's home address is 363 North Street, East Weymouth, Mass.—The engagement is announced of Miss Lavina Burton, of Arlington Heights, Mass., to Winthrop Parker Tenney, of Brookline.—Henry Morss, commodore of the Corinthian Yacht Club of Marblehead, in his schooner yacht "Dervish," won the ocean race from New York to Bermuda, which was started June 5. The yachts of the first class which were racing for the cup offered by the rear commodore of the New Rochelle Yacht Club were the "Priscilla," "Dervish," "Zuhrah," "Shamrock," "Tammany," "Zinita," "Isolt," and "Mist." Morss and Sam Braman, '93, were the navigators of the "Dervish," and the behavior of the boat is shown by the following extracts taken from the account of the race published in the Boston *Transcript*:—

HAMILTON, BERMUDA, June 10.—Commodore H. A. Morss's schooner yacht "Dervish" was the first of the yacht racers from New York to arrive here. She crossed the finish line off St. David's Head at 6.25 o'clock yesterday morning, having made the passage from Gravesend Bay, where the race was started, in 3 days, 18 hours, and 25 minutes. "Hyperion," Rear Commodore Frank Maier's new yawl, finished at 2.51 o'clock yesterday afternoon. Her passage was even more remarkable than that of the "Dervish." She made the journey in 4 days, 4 hours, and 16 minutes. She is only 49 feet long, while the "Dervish" is 83 feet in length, and, according to the system of time allowance used in the race, the "Dervish" would have had to allow 25 hours and 30 minutes to the "Hyperion" if they had been sailing in the same class. "Hyperion" had hardly arrived in the harbor when the yawl "Lila," owned by R. D. Floyd, was sighted. She finished at 6.25 o'clock, having made the voyage in 4 days, 7 hours, and 50 minutes. She gets an allowance of 6 hours and 45 minutes from the "Hyperion," so she beats that yacht by 3 hours and 11 minutes. "Dervish" crossed the starting line in Gravesend Bay at 10.36.05 on Wednesday, the starting gun having sounded at 10.35. "Hyperion," with Commodore Frank Maier at the wheel, led the fleet, and "Dervish" was the second boat. She stood over to the south-west spit, and then tacked and passed

out by the Hook at noon, well in the lead. "Shamrock" at that time was doing well, and before sundown was in second place, but some three miles to leeward of the "Dervish." The wind was from the south-east, and it held from that quarter all night. Commodore Morss acted as his own navigator, and, as the wind was ahead, he did some fine plotting, and by noon on Thursday had left Sandy Hook 162 miles behind. The yacht by that time had a quartering wind, and was travelling fast. She struck the Gulf Stream on Thursday afternoon at 2.15 o'clock, Commodore Morss electing to take it where it came in his voyage and not keeping down until off Cape Hatteras to cross. The wind held steadily, and on Friday shifted to north-west, still being favorable, and for a while "Dervish" carried a square sail. In the twenty-four hours ending Friday noon, the yacht made 233 miles, which shows how she was travelling. In the next twenty-four hours, ending at noon on Saturday, she made 131 miles, and then Commodore Morss and his friends began to think that they might get into Hamilton on Sunday if the wind held. All Saturday afternoon the yacht did well, and by midnight she was only about fifty miles from the finishing line. The men on the watch were keeping a good lookout, and at 3.30 o'clock in the morning St. David's Head was sighted, and all hands knew that the race was nearly over. The arrival of the "Dervish" took the local yachtsmen by surprise. They had not expected that the racers would reach here so soon, and there was no stake-boat out to mark the finish. The red, green, red night signals on "Dervish" were seen in the light-house on St. David's Head, but even then it was impossible to get the judges out at the finishing line on time, but they were there almost as soon as "Dervish," and gave a rousing welcome to Commodore Morss, his guests and crew. "Dervish" was towed into Hamilton Harbor, and hundreds of craft of all sizes turned out to greet her, and the piers and shores were lined with men and women who cheered incessantly as the yacht was taken to moorings off the Royal Bermuda Yacht Club.

1894.

PROF. S. C. PRESCOTT, *Sec.*, Mass. Inst. of Technology, Boston.

F. P. McKibben has accepted a position as head of the civil engineering department at Lehigh University, South Bethlehem, Pa., and enters upon his new duties in the fall. The *Brown and*

White, the college paper at Lehigh, printed the following account of McKibben and his activities in a recent number:—

Professor Frank P. McKibben, of the Massachusetts Institute of Technology, has been appointed professor of civil engineering, in charge of the department, in place of Professor Mansfield Merriman, who has resigned after a record of twenty-eight years' service.

Professor McKibben's experience as an engineer gives assurance that the work of our great engineering school will be continued on its past high plane of efficiency. He studied at the University of Arkansas for three years before entering the Massachusetts Institute of Technology, from which institution he graduated in 1894, with the degree of B.S. in civil engineering. Since graduation he has been teaching in the department of civil engineering of the Institute, and in addition has been engaged in engineering practice, mostly in connection with the designing and construction of bridges, buildings, and various other structures. He has had experience with several bridge companies, and for two years was assistant engineer of the Boston Elevated Railway Company. In 1901 he was made assistant engineer of the Massachusetts Railroad Commission, a position which he has held since that date, and from 1902 to 1907 was librarian of the Boston Society of Civil Engineers. At present he is associate professor of civil engineering in the Institute of Technology. He is a member of the American Society of Civil Engineers, of the American Society for Testing Materials, of the American Society for the Promotion of Engineering Education, and of the Boston Society of Civil Engineers.

—R. H. Ober, who was with the class in its first year at the Institute, was recently heard from. He is connected with the Chicago, Milwaukee & St. Paul Railway Company of Washington, and is the engineer of the Columbia River Bridge. It is very pleasant to hear from the fellows in this way, and to learn of their professional work. —C. D. Pollock has been elected secretary of the Municipal Engineers of New York, also president of the Brooklyn Engineers' Club. These duties, combined with his work in charge of all paving contracts for Brooklyn, keep him from having many idle moments.— A. R. Mackay has returned to Montreal, and his address is Royal Insurance Building.—J. H. Parker is practising architecture at 20 Beacon Street, Boston.—D. C. Chaffee is also practising architecture at 600 Equitable Building, Louisville, Ky.—F. A. Schiertz is pro-

fessor of chemistry and metallurgy in the Montana School of Mines, a position for which his varied and very successful mining experience has admirably fitted him.—Two other of the architects who have recently been heard from are C. G. French, of 191 Genesee Street, Utica, N.Y., and A. S. Gottlieb, who has an office at 156 Fifth Avenue, New York.—T. O. Barnard is located at 10 Post-office Square, Boston.—One of the New York agricultural papers gave recently a very full and appreciative account of the large estate at Pinehurst, N.C., owned and operated by Tufts. The dairy industry that he has established there is a model, and has been the subject of much favorable comment all through the country.—F. Drake was heard from not long ago at Bisbee, Ariz., where he was engaged on some professional work. Drake's office is at 804 Tacoma Building, Chicago.—Two marriages of interest to '94 men have recently taken place. F. W. Lovejoy was married on Tuesday, June 18, to Miss Florence Isabel Fuller, of Springfield. They will live at Rochester, N.Y., where Lovejoy is general manager of the Kodak Park works of the Eastman Kodak Company.—N. H. Janvrin was married on Thursday, June 20, to Miss Avis Genevieve Grimes, of Franconia, N.H. Janvrin is connected with the Department of Water Supply, dealing especially with the new great water supply of Greater New York, with headquarters at Peekskill.—The class dinner was held at the Nottingham on Tuesday evening, June 4. The attendance was smaller than for several years past, but nine members of the class being present. Those attending were McKibben, Claflin, Beardsell, Spalding, Lawrence, Moore, Day, Breed, and Prescott. Notwithstanding the small attendance a pleasant hour was passed, and greetings with '96 were exchanged. At eight o'clock the diners went to Symphony Hall, where they were joined by a half-dozen other members who were not able to get to the dinner because of other engagements.—W. F. Spalding has returned to Boston as a member of the firm of Collins, Spalding & Co., 10 Post-office Square, dealers in investment securities.—H. S. Duckworth, after twelve years as chemist for the Cocheco Company at Dover, N.H., has become superintendent of the Hamilton Print Works at Lowell.—Dr. W. H. Sayward, Jr., is in charge of the Dublin Chemical and

Pathological Laboratory at Dublin, N.H., for the summer.—The secretary received a letter from G. H. Anderson, assistant superintendent of blast furnaces at the Maryland Steel Company, Sparrow's Point, Md., about the time of the class dinner. Anderson has had a very interesting career, having been for the past two years at Homestead, Pa., and previous to that in other steel centres in the United States, and often quite out of reach of the secretary.—A letter from G. N. Leiper bears the heading "Plymouth Stock Farm, Plymouth Meeting, Pa." The letter reports a very busy season in this line of experimental work.—The secretary announces with regret the death of F. H. Murkland at New Bedford on Jan. 4, 1907.—B. E. Holden has an office at 1417 Railway Exchange, Chicago.—L. T. Cutter is at present attached to the revenue cutter "Apache" at Baltimore, Md.—S. C. Prescott has recently been elected a trustee of Sanborn Seminary, a preparatory school at Kingston, N.H.

1895.

HAROLD K. BARROWS, *Acting Sec.*, 6 Beacon Street, Boston.

R. N. Wheeler has been appointed a division engineer upon the Northern Aqueduct Department of the New York Board of Additional Water Supply. His headquarters will be at 42 Market Street, Poughkeepsie, N.Y.—Miller reports change of address to 146 Franklin Street, Boston.—G. A. Cutter is at Wells, Me.—M. M. Wheeler is chief engineer of the Kentucky Midland Railroad, with headquarters at Central City, Ky.—Stock is at Chicago, 1440 Edgecomb Place, Buena Park.—W. S. Richardson is at 1605 5th Avenue, New York City.—C. F. Johnson is also in New York at 42 East 20th Street.—Dr. Fernald reports change of address to 1245 King's Highway Street, St. Louis, Mo.—Badgley is now at Seattle, Wash., P.O. Box 3.—D. P. Hart is in New York at 67 West 94th Street.—Phillips is at Chicago, 1615 Ashland Block.—Eveleth reports change of address to 120 Boylston Street, Boston.—Barrows has opened an

office at 6 Beacon Street, Boston, for practice and consultation in civil engineering, specializing along the lines of water power, water supply, and water purification. He will still give some time to the work of the United States Geological Survey, principally in the States of Maine and New York.—'95 held its annual meeting and dinner on June 4 at the American House. There were present President E. A. Tucker, Vice-President A. C. Jones, and the following members of the class: Tillinghast, Shepard, Thomas, Hurd, F. A. Bourne, and Eveleth. Owing to the few present at the dinner, it was decided to hold the class meeting at the "Pops" later in the evening, where the following men joined the class: Loring, Parker, Rhodes, Lawrence, Newell, Rockwell, and Jackson. At this meeting Hurd, Rockwell, and Thomas were appointed a nominating committee, and reported the following nominations for class officers for the ensuing year: president, F. A. Bourne; first vice-president, C. F. Eveleth; second vice-president, R. R. Lawrence; secretary and treasurer, A. D. Fuller; and they were unanimously elected to serve. The class dinner was a very successful one, and the usual amount of enthusiasm was displayed later in the evening at the Pop.—Following is a letter addressed to Dean Burton under date of May 10, 1907, from François E. Matthes.

WASHINGTON, D.C., May 10, 1907.

Thank you for your kind words of appreciation. The Bright Angel sheet was done so long ago that, in comparison with my latest work in the Yosemite Valley, it has, at least to me, a somewhat archaic look. As you probably realize, the engravers might have done better. I am at present engaged in seeing through the second Grand Canyon sheet, the Vishnu Quadrangle. The "Yosemite Special" was completed last fall, and is also in the hands of the engraver. It is a much more spectacular affair than the Grand Canyon sheets, there being exceptional diversity and contrast among the topographic forms about the Valley. Also, it is a study in rock-structure as much as in topography.

I am at present inspector of topographic surveys. It may afford you pleasure to learn that, of the three inspectors provided for in the new organization of the Topographic Branch of the United States Geological Survey, two are former pupils of yours, Mr. William M. Beaman and myself. The inspectors constitute a body of experts who act in an advisory capacity to

the section chiefs, and at the same time inspect the quality of the field-work and instruct the individual workers, in the field as well as in the office. So you see, in a way, I am teaching, after all. My particular field is the Far West, from the Rocky Mountains front to the Pacific, the country of my choice. I expect to start on my first round in a few weeks, and probably will not return East until late in fall. If I get a chance then, I shall certainly drop in at Tech once more.

1896.

EDWARD S. MANSFIELD, *Sec.*, 39 Boylston Street, Boston.

The regular annual meeting of the class was held at the Hotel Nottingham on Tuesday evening, June 4, at which the secretary and treasurer's report was read and approved and the same officers re-elected for the coming year. After the meeting the class dinner was held at the same place. The following men were present: Hedge, H. R., Hedge, W. R., Heerman, Henry, Hersey, Hewett, Knight, Lythgoe, Maclachlan, Mansfield, Rockwell, Smith, H. E., Trout, Tucker. After the dinner the men marched up to Symphony Hall, where other '96 men joined the party.—On May 25, in New York City, Myron E. Pierce was married to Miss Blanche B. Cochran, of that place. They will reside at 73 Pinckney Street, Boston.—Merrill S. Wilcox is now living at 1117 Columbus Avenue, Sandusky, Ohio.—Thomas T. Perkins wishes to be put on record as living at 5 Essex Street, Cliftondale.—Douglas H. Thomas, Jr., of the firm of Parker & Thomas, architects of Boston and Baltimore, is representing the firm at Union Trust Building, Baltimore, Md.—A. V. Shaw is superintendent of the Auburn Consolidated Gold Mining Company of Silverton, Col.—On July 2 Edward M. Bragg was married to Miss Helen E. Brooks, of Gloucester, Mass.—Word has just been received from Russell W. Porter, who is an architect in Port Clyde, Me.

1897.

JOHN A. COLLINS, JR., *Sec.*, 67 Thornton Street, Lawrence, Mass.

The tenth anniversary of the graduation of the class was observed with much enthusiasm on the part of those who were in attendance at the various events.—At the alumni reception A. W. Jackson, whom all will remember as a star after-dinner speaker, presented the class of '07, in behalf of '97, with a night-cap and gown. This was to compensate in a way for the refusal of the Faculty to allow the graduating class to wear the conventional cap and gown. The gift made a great hit with '07. Those present were Hopkins, Burrill, Cowles, Smith, Jackson, Humphreys, and Collins.—As was stated in the circular letter, through the courtesy of C. W. Bradlee the class had the use of the Tedesco Country Club at Swampscott on Monday and Tuesday of Commencement Week. Had the weather on Monday been fine, there would doubtless have been a goodly number present at the smoker on Monday evening. Dr. Tyler, Dr. Dewey, and others of the Faculty were to have come. By the vigorous use of the telephone there were finally corralled Hopkins, Norris, Ilsley, Bradlee, Jackson, H.D., Elson, Carter, Howes, Busby, Collins, Fairbanks, and Bowen. The crowd took automobiles and rode to Ferncroft Inn, Danvers, and at ten o'clock Monday evening sat down to one of its famous fried chicken dinners. Needless to say, the evening was an enjoyable one. Returning to the Tedesco Club shortly after midnight, the majority of the men remained at the club-house, returning to Boston on Tuesday.—The class dinner on Tuesday evening at Hotel Thorndike was a great success,—in fact, the best that the class has ever had since graduation. This must be attributed to the presence of the ladies. So far as can be learned, this idea was a new one in the history of class reunions at Tech, and we can heartily recommend it to others. An excellent menu was served, and from six until nearly eight o'clock the dining-room was filled with jollity and merriment. Those who were present were: Mr. and Mrs. Fairbanks, Mr. and Mrs. Eames, Mr. and Mrs. Ilsley,

Mr. and Mrs. Boyd, Mr. and Mrs. Hopkins, Mr. and Mrs. Edmands, Mr. and Mrs. Collins, E. P. Bliss, Miss Bliss, N. C. Burrill and lady, E. R. Olin, Miss Goodwin, Wilfred Bancroft, Humphreys, Cowles, Pettee, Busby, Bradlee, Atwood, Howes, Carty, Swan, Elson, H. D. Jackson, A. W. Jackson, Norris, H. W. Smith, Taylor, Fuller. After the dinner everybody proceeded to the Pop, where '97 did her share in cheering, singing, and the practical investigation of internal lubrication. At the Pop every one was glad to see "Father" Borland, who had managed to escape from the government reservation at West Point. It was the first time he had met with the fellows since graduation. By clever work we managed to string the '97 banner from the upper balconies, where it hung for some time.—The secretary wishes to call the attention of those who have not paid the dues as yet that an assessment of $2 was called for. This may seem large, but there has been none for eight years, and the expenses will be heavy this year.—T. R. Weymouth, of Oil City, Pa., was married on June 1 to Miss Florence Lee Holtzman, of Washington, D.C. In the fall they will go to Europe, where Mrs. Weymouth will make her début in grand opera.—Klaus J. Steiner is a member of the board of directors of the Treasury Tunnel Mines Corporation, Pittsburg.—Sheldon L. Howard is president of the United States Reference and Bond Association (Inc.), 427 Drexel Building, Philadelphia.—Killam is chairman of board of selectmen, Reading, Mass.—W. O. Sawtelle is a graduate student at Harvard University.

1898.

PROF. C.-E. A. WINSLOW, *Sec.*, 157 Walnut Street, Brookline, Mass.

The class of '98, as usual, celebrated the Commencement season merrily and well. Beginning with a joyous spread at the Technology Club, the celebration passed to the class dinner at the Brunswick, and thence to a service of song with appropriate cheering and some few interstices of music at the Pop. At a business meeting it was determined that a rousing celebration should be held next year at

the decennial of the class, and that an effort should be made to bring back as many men as possible for that celebration. It was also determined that a class book should be issued of the nature of a directory, giving addresses and occupations, which should also record briefly the notable and remarkable achievements of the various members of the class. Both celebration and book were given over to the Class Committee with power to call for needed assistance. Subscriptions to the book are to be called for in advance of publication in an endeavor to do away, if possible, with all advertising in the book. Twenty-four men turned out to the dinner, and were joined later by some ten more at the Pop. Major Bigelow, the honored honorary member of the class, was with us the latter part of the evening. A telegram was sent, and three cheers were given to the absent secretary, Charles-Edward Amory Winslow, then on his wedding trip. "Pop" Coburn presided with his customary grace. Somewhere in the excitement of the evening the list of all those present disappeared, but Treat, Wing, Russell, Stevens, Curtis, Robinson, Godfrey, Dawes, Blanchard, Butcher, Clifford, Coombs, Danforth, Goodrich, Putnam, Richmond, were a part of the men present. Everybody at the dinner may be safely set down as having made one speech, but there were no formal remarks. In fact, quite the contrary. At the Pop a judicious observer could not have but remarked on the excellent coherence and power of the '98 cheering. Nine years out of college does not seem to have injured the lung capacity of the class in the least. Somewhere about eleven the final song was sung, the last cheer cheered, and '98's part in the 1907 celebration was ended.—Ulmer left the Arbuckle Company January 1 to become superintendent of the California & Hawaiian Sugar Refining Company at Crockett, Cal.—A. L. Davis is now manager of the crucible melting department at the Park Works of the Crucible Steel Company of America at Pittsburg.—Tietig and Lee have dissolved partnership. Lee is now practising at Home City, Ohio, and Tietig has an office at 2525 Observatory Road, Cincinnati.—Bragg has just informed the secretary of the birth of a daughter, Lena Ernestine, on Oct. 7, 1906.—P. A. B. Richardson is now in the office of McKim, Mead & White, 160

Fifth Avenue, New York.—Purdon is practising architecture at 8 Beacon Street, Boston.—Webster is in the office of Lowell, '94, 1128 Tremont Building, Boston.—Wooster is located at 361 Broadway, New York.—Porter sends a new address, 1613 Rodney Street, Wilmington, Del.—Twombly is now with the R. E. Dietz Company, 60 Laight Street, New York.—H. I. Lord has been made general manager of the sales department of the Detroit Lubricator Company. His address is the Detroit Club, Detroit, Mich.—Snelling was married May 2 at Trinity Church, Concord, Mass., to Miss Eleanor G. Goodwin. The Rev. Samuel Snelling officiated, and Winslow was best man.—Winslow was married, May 21, to Miss Anne F. Rogers at Trinity Church, Boston. The officiating clergy were the Rev. Alexander Mann and the Rev. W. H. Van Allen. Snelling was best man, and Gardner was one of the ushers.—Mills has been elected secretary and treasurer of the Aldine Press, with an office at 627 Witherspoon Building, Philadelphia. His home address is Audubon, N.J.—Coburn has been made secretary of the M. E. Ambursen Hydraulic Construction Company.—J. T. Robinson announces the birth of a daughter, Prudence, on January 8, 1907.—Dawes has been recently elected a director of the Worcester Electrical Contractors' Association. He has also been appointed sergeant of Company M, 5th Regiment, M. V. M.—Parker has returned to the East as advertising manager of the E. T. Burrowes Company. His address will be 490 Forest Avenue, Portland, Me.—Goldsmith has been elected superintendent of the Board of Public Works at North Andover, Mass. He announces the birth of a son, William Gleason, 2d, born Feb. 7, 1907.—Allyn's second daughter was born July 15, 1906. He has moved his New York office to 16 Exchange Place, and has opened a branch office at Waterbury Conn.—Goddard writes:—

> Twin boys arrived Dec. 1, 1906. They are now six months old, fat, and "sassy." I am still planning, in spite of this, to be around for the doings of June, 1908.

—Coombs has been appointed New England manager of the Atlantic Terra Cotta Company, the largest manufacturers of terra-cotta in

the world.—Franklin is superintending chemist with the William Campbell Wall Paper Company of Hackensack, N.J.—Thompson was made assistant professor of electro-chemistry at the May meeting of the Corporation of the Institute.—Weimer sends the following list of offices held: president Weimer Machine Works Company, president Weimer Chain and Nut Company, president Lebanon Reduction Company, president Lebanon Poultry Association, president Perseverance Fire Engine Company, and mayor of the city of Lebanon. Small wonder that he adds, "Too busy this year to get to Boston."—Lacy completed in March, the piers for the Tennessee River Bridge, a work involving the use of 11,000 cubic yards of concrete.—Tew is manager of the Consolidated Pneumatic Tool Company for Scotland, and his permanent address is 55 Waterloo Street, Glasgow.—Fiske has been appointed first reader of the First Church of Christ, Scientist, at Providence, R.I.

1899.

HERVEY J. SKINNER, *Sec.*, 93 Broad Street, Boston, Mass.

The annual dinner and meeting of the class was held at the Hotel Westminster on the evening of Commencement, June 4. The following men were present: T. W. Bailey, A. H. Brown, Corse, Eaton, Kingman, J. E. Lewis, Mork, Rickards, Sheak, Sherrill, Skinner, Tufts, and Whitney. At the business meeting preceding the dinner Mork, Sherrill, and Eaton were elected to the Advisory Council for the coming year. After the dinner the class adjourned to Symphony Hall, and joined in the usual celebration of Tech night at the Pop. At the hall the number was increased by Hamburger, Richmond, Stebbins, and Witherell.—Members of the class were easily distinguishable by the large white chrysanthemums worn by each member. These were furnished them through the courtesy of W. A. Kingman, who exercises chemical control over their manufacture.—Corse and family, of Detroit, were in Boston for about a week at Commencement time. His many friends were glad to see

him after an absence of six years. He is assistant superintendent of the Detroit Lubricator Company, and one of the few men who have made a study of brass foundry work from the chemical standpoint. Corse was recently elected vice-president of the American Brass Founders' Association, a new organization just formed in Philadelphia, and which corresponds to the American Foundrymen's Association for the iron industries.—Doctorate Disputation held Monday, May 27, 1907, at the George Washington University: Frederick Warren Grover, B.S. '99, M. I. T., M.S. 1901, Wesleyan University. Thesis, "The Simultaneous Measurement of the Capacity of Power Factor of Condensers."—Cards were recently received from A. R. Holliday announcing his association with the National Concrete Company of Indianapolis. Holliday was formerly with the Pennsylvania Railroad as engineer, maintenance of way.—Phelps was appointed assistant professor of research in chemical biology at the Institute this spring. He is the first '99 man to reach the distinction of being a member of the Faculty.—Pray was chief marshal of the Dorchester Day parade on June 8. He is a lieutenant in the Massachusetts Naval Brigade. Our other military man, Morse, of the regular army, has been in Boston recently on a leave of absence from his station at Fortress Monroe, Va.—There occurred on June 20, at All Souls' Unitarian Church, Washington, D.C., a double wedding, in which Miss Kate Tindall, daughter of Dr. William Tindall, secretary of the commissioners of the District of Columbia, became the wife of Edwin F. Samuels, while the brother of the bride was married to Miss Browning, of Washington. The event was distinguished by unusual incidental beauty of appointment and an elaborate musical program, and was followed by a reception at the home of Mr. and Mrs. Browning. Mr. and Mrs. Samuels will be at home after September 1 at Roland Park, Baltimore.—F. A. Watkins was married June 4 to Miss Elsie Langdon Crane, of Summit, N.J. The ceremony took place at the home of the bride's mother at Summit, and was attended by a brilliant assemblage from Summit and Elizabeth, the latter place being the bride's former home. Watkins is located in New York with the Telephone Sales Department of the Western Electric Com-

pany. Mr. and Mrs. Watkins will make their home in Summit, where a new house has been furnished for them.

1900.

H. E. Osgood, *Sec.*, 32–44 Pearl Street, New York, N.Y.

At the class dinner, held at the Lenox at 6 P.M., Tuesday, June 4, the following men showed up: Fitch, Sears (all the way from Mexico), Chalmers, Stearns, Kattelle, Burnham, Walworth, Wentworth, Remington, Briggs, A. B. Jennings, Osgood, and Wastcoat. After the dinner was over, the nominating committee reported the election of H. E. Osgood (II.) as secretary, Joe Draper (IX.) as vice-secretary, and Walworth, Kattelle, and Gibbs as executive committee for the coming year. Fitch, Stearns, and Briggs were appointed nominating committee for the coming year. At the Pop we were reinforced by Gibbs, Learnard, Constantine, Draper, Hapgood, Graff, and Wyman.—As stated in the class letter, the retiring secretary is now located at 100 William Street, New York City; and, as he has a chair in his office for visitors, he would be glad to have any of the fellows drop in and see him.—Witherell (XI.) was reported as being in Boston this spring. The Pennsylvania air and married life evidently agree with the doctor, as he weighs over two hundred, and looks, as one of his old chums said, "like a director in a Nipissing mining company." About a year ago he left the American Water Works and Guarantee Company to become assistant chief engineer of the Pennsylvania State Board of Health. His work in that connection has been the investigation of numerous typhoid outbreaks. His labors in that direction were eminently successful, and he was very urgently requested by many prominent men of the State to continue in office, but after a year's service resigned to return to his former company, where he is now employed as their chief engineer.—F. I. Tucker, who is a brother-in-law of H. D. Learnard, is located in the Virginia Mountains, at Big Stone Gap, where he is superintendent of coke ovens at a coal

mine. He is married, and has a little boy and girl.—Learnard is still at his same old place in Boston, 185 Devonshire Street, with the S. W. Fuller Company.—Brooks, Z. M., who came to Tech from Yale, and was in our class, is now located in Schenectady, N.Y., with the General Electric Company. He writes that he is not able to get down this year, but plans to get to Boston next year and 1909. He is one of the married men in our list.—Zeigler (II.), writes that he will certainly be on deck in 1909, and Davis, C. T., that he is living out at New Rochelle, N.Y., and is connected with the New York Central.—Perry, out in Grand Rapids, writes:—

When in Chicago about the first of March, I had the pleasure of attending the alumni dinner there, and met C. M. Leonard, E. H. Davis, A. S. Merrill, and F. D. Chase, and we made as much noise as any of the classes. In Indianapolis, a few days later, I took lunch with Charles M. Fosdick, and just yesterday Frederick C. Ayres, who was with our course for several years, came in to see me. He is now located in Detroit. It seems very pleasant to get in touch with some of the Tech boys again, and I would be very glad to get together in a class reunion some time, and compare notes with the rest of you.

—Leonard, in the "wild and woolly" Chicago, says:—

It is with a great deal of regret that I have to say that I am wifeless, hairless, childless,—in fact, have not even a good, friendly dog.

Sincerely trust that the average of the class will help out my poor showing above. Worse than that, I have to report that I am beginning to get fat.

—The ever-jolly Davis from Purdue:—

I was glad to get your May 20th circular. I have not heard from the class directly, in a dog's age. I wish I could have a part in the commencement games, but I have to work a few of my own here. One advantage, though, of being at a technical college, is that one sees congenial visitors. Professors Jackson and Lawrence were here recently for a day, and talked Tech very gratifyingly, of course.

I enclose my dollar. If you don't get the other $1.70, let me know. The class reunion must and shall be preserved! The fellows really ought to put up each year, according to your plans, and get some working capital

for the class. Apparently, they think they're at church. . . . I enclose also my statistics, which remind me so much of Neal's questions at Class Day that I innocently sacrificed decorum (but not truth) to the call of the pink sheet. I enclose, finally, my vote. It looks like another "popularity campaign" rather than a platform one, in the first ballot. The Nomination Committee did a good job. I haven't any personal news. We raise only corn and B.S.'s out here.

Last Christmas time I happened to be in Boston, and on the midnight of December 31 was enjoying a cigar on the Brunswick steps. Standing there, I heard a group of about forty loyal 1907's cheer in the New Year on the steps of Rogers. It sounded good, and felt queer, too, to think that it was the first time I had ever seen the ceremony. During Tech I lived ten miles out of Boston,—too far to join in the act,—but 1,000 miles I found was nearer. Not near enough, though, for I stayed on the Brunswick steps.

The question of class baby aroused some competition, while the question of marriage was evidently an easy one for everybody, for the answers were all either yes or else a decided no. As far as unmarried men are concerned, it was only necessary for them to answer the first question, but some of them evidently felt embarrassed, for there was lots of "crawling" done on the others. Suter on the marriage question must have been thinking of his experiences in the Philippines, for he puts it, "No, escaped so far." Keith has never had time to consider the question, while Silverman is in a class by himself,—the "not yet, but soon" class. Johnson, B. R., Hopkins, Leonard, Plummer, Emery, Jouett, Davis, E. H., Macpherson, all unmarried, have taken pains to answer the second and third questions, and Chalmers, who to the first question puts down a big NO, even thinks it necessary to add "see above" to the remaining questions, while Wyman, when it came to claiming the class baby, was evidently feazed, or he adds, "Don't see how I can." Replies received by secretary tabulated to show the salaries and married and unmarried men by courses:—

	I.	II.	III.	IV.	V.	VI.	VII.	VIII.
Graduates, '00	32	34	21	21	19	23	3	3
Replies from class members graduating '01	1		1					
	33		22					
Replies received to questions,	11	10	4	3	3	4	0	0
Married, with children	1	3	1	2	1	1	0	0
Married, without children	1	3	1	1	1	0	0	0
Total married	2	6	2	3	2	1	0	0
Not married	9	4	2	0	1	3	0	0

	IX.	X.	XI.	XII.	XIII.	Non-graduates.	Total.
Graduates, '00	5	11	4	0	9		
Replies from class members graduating '01		1			1		
		12			10		
Replies received to questions,	1	4	1	0	3	10 =	54
Married, with children	0	1	0	0	1	4 =	15
Married, without children	0	0	0	0	0	4 =	11
Total married	0	1	0	0	1	8	26
Not married	1	3	1	0	2	2	28

SALARIES

	I.	II.	III.	IV.	V.	VI.	VII.
A	0	1	0	0	0	0	0
B	2	0	0	1	0	0	0
C	2	3	1	2	0	3	0
D	3	3	2	0	1	1	0
E	1	0	0	1	1	0	0
Did not answer	3	3	1	0	0	0	0

	VIII.	IX.	X.	XI.	XII.	XIII.	Non-graduates.
A	0	0	0	0	0	0	1
B	0	1	0	0	0	1	3
C	0	0	1	0	0	1	2
D	0	0	2	0	0	0	2
E	0	0	0	0	0	0	1
Did not answer	0	0	1	1	0	1	1

	SALARIES					
	A *0 to 1,000.*	*B* *1,000 to 1,500.*	*C* *1,500 to 2,000.*	*D* *2,000 to 3,900.*	*E* *4,000 and over.*	*Did not answer.*
Total number . . .	2	8	15	14	4	11
Married	0	3	8	9	3	2
Not married . . .	2	5	7	5	1	9
Graduates	1	5	13	12	3	10
Non-graduates . .	1	3	2	2	1	1

The class baby contest stands as follows at the present time:—

Non-graduate Wolcott Remington. Boy. Born Nov. 25, 1897.
Graduate Carleton Ellis. Girl. Born Sept. 26, 1902.
Graduate George E. Russell. Boy. Born Oct. 6, 1902.
Graduate John F. Wentworth. Boy. Born

The class as a whole made a very poor showing as far as the *number* of replies was concerned, but out of sixty-one replies only three failed to enclose $1 for dues. Very nearly four hundred letters were sent out, and the added expense of letter postage should have brought in more results, because this meant that every letter would be forwarded to the party intended, provided the address was wrong. There are many who will see this magazine who have not yet sent in their dues, and it is hoped that they will not need a further reminder.

1901.

R. H. Stearns, *Sec.*, 15 Beacon Street, Boston, Mass.

Fourteen loyal 1901 men and one guest gathered around a circular table at the American House on Saturday evening, June 1, to review the past and adjust the future of the "Great Class of 1901." President Campbell presided, and seated round the table were Rowe, Scully, Brush, Freeman, Skene, Farnham, Williams, Putnam, Pepperell, McGann, Monaghan, Clapp, and the secretary. While many were absent from the roll-call, few were forgotten; and during the dinner we brought the absentees back one by one, and recounted

what we knew of their deeds and whereabouts. The dinner finished, the business meeting was called. The treasurer's report showed the class to be firmly on its feet again. The ballot for officers resulted in the election of Allan Winter Rowe, president; Frederic W. Freeman, vice-president; and Ralph H. Stearns to continue as secretary-treasurer. Following the election, the secretary was called upon for some class statistics, a digest of which is printed below, and they were received with interest. The smoke talk, so to speak, was opened by Brush, who gave us a few sidelights on the management of street railways. Rowe followed as the principal speaker of the evening with a talk on German student life. Rowe had not addressed a 1901 class meeting for five or six years, and it was like getting back home for him. With illumined detail he explained how he had steered through the devious courses of the German university without running aground on German etiquette, on the one hand, or German arrogance, on the other, and how he had finally weathered a trying oral examination and come into port with a Ph.D., while a confidant companion took a lemon instead. Scully then unfolded his career leading up to his partnership in the firm of J. T. Scully & Co. Skene (XIII.) told of his work in yacht designing, his publication of a book on yacht design and construction, and his present business as a constructor of power boats and yachts. Then the rest of us told of our doings to date till 11 o'clock sounded, and we adjourned with a most pleasant recollection of our tenth annual dinner.—Recent good fortune to members of the class includes the marriage of Edward Seaver, Jr., to Miss Grace Ambrose Whitmore, of West Newton, on June 10; of George A. Hall to Miss Faith Pomeroy, on June 4; and the engagement of A. F. Sulzer to Miss Glyder Roberts, of Rochester, N.Y.—A. W. Rowe sailed again for Europe on June 25. Apparently, he has the habit.—Following is a compilation of the information at hand about '01 men:—

Number of active members	289
Number of deaths during past year	1
Number of married men	96

or about 60 per cent. of those about whom the secretary has information.

Number of children reported	43
Class average, for week's work	53 hours.
Maximum average for one man	84 hours.
Maximum income from professional work	$18,000*
Minimum income from professional work	$1,000
Average income from professional work	$2,150

AVERAGE INCOME

By Courses.		*By Geographical Location.*	
Mining Engineering	$3,150	New England States	$1,730
Chemistry and Chem. Eng.	2,675	Middle Atlantic States	2,400
Naval Architecture	2,500	Central and Southern States,	2,400
Electrical Engineering	2,200	Western States	2,670
Civil and Sanitary Eng.	2,100	Average for 63 men, 1907	2,150
Biology and General Studies,	1,800	Average for 73 men, 1906	1,850
Mechanical Eng.	1,750		
Architecture	1,650		

The secretary has removed from the mailing list the names of a number of former students who had slight or no connection with the class, and who have shown absolutely no interest in class affairs. If such men wish to be reinstated at any time, they can do so by writing to the secretary to that effect.

HALIFAX, N.S., May 9 (Special).—Frederick H. Sexton, professor of mining and metallurgy at Dalhousie University, Halifax, was to-day appointed director of technical education for Nova Scotia. This is a position created by act of legislation passed last session establishing a system of technical education in this province, embracing technical college at Halifax, local technical schools in industrial centres, and mining schools throughout the provinces. Mr. Sexton is given charge of this work. He is a graduate of the Massachusetts Institute of Technology.—*Transcript*, May 9, 1907.

* This income excluded from all averages. Another income of $100,000, derived from enterprises in which a large amount was invested, not included.

1902.

F. H. HUNTER, *Sec.*, West Roxbury, Mass.

The fifth reunion of the class of 1902 has gone into the past, but the past got a severe jolt when it went. The fun began on Monday, June 3, when a crowd of choice spirits dined at the Lombardy Inn, and then attended the opening performance of Richard Carle's new opera, "The Hurdy Gurdy Girl." The play contained an unusual number of acts, also, therefore, several "between-the-acts," all of which was refreshing. However, all the men were on deck the next day. The excursion which was scheduled for Tuesday was called off, owing to the small number of responses, but the men who had come from a distance and those who could take the day off got together at the Highland Club, West Roxbury, and filled the day with various sports. Although no formal matches were played, the honors at tennis went to Fitch, while Stillings was high man on the bowling alley and the pool table. The annual dinner was pulled off in the Dutch Room of the Copley Square Hotel. The attendance at the dinner and also the average salary of the men there showed a good gain over last year. A message of regret was received from McCarthy, and notes from Charlie and Mrs. Kellogg were read in acknowledgment of the present sent at the time of their recent marriage. The secretary was instructed to send replies. C. B. Allen was the one who had come farthest to be present, and received a stein, suitably inscribed, as a souvenir. Greetings were exchanged with several classes who were dining under the same roof, but the feature of the evening was a visit from '92, who marched in to give us good advice and good cheers. '02 returned the good cheer a little later by marching up to see '92 with Charlie Mixter at the head bearing a bowl of punch for the thirsty. At the Pop, as ever, '02 was on deck, and let the fact be known with serpentines, confetti, and cheers. An attempt to suspend a big banner above the hall was "flagged" by the management, but in spite of this the boys who wore the wooden buttons for their

"Wooden Reunion" were much in evidence. Among those on deck for all or some of the functions were: C. B. Allen, Ames, Butler, Boardman, Ned Baker, Collier, Crowell, A. W., Currey, H. H. Davis, Dickson, Eames, Everett, Fitch, Fisher, Fletcher, Fitzgerald, Steve Gardner, Greeley, Hooker, Hunter, Lewis, Mahar, Millar, Marvin, Mathesius, Charlie Mixter, Morrill, Nickerson, Patch, Ritchie, Stover, Stillings, C. A. Sawyer, Jr., Starr, Towne, Thurston, Whittet, Westcott. At the business meeting the constitution was amended to increase the number of vice-presidents to three without rank. This was done that the men in New York and Chicago might be represented on the board. The following officers were elected: president, C. A. Sawyer, Jr.; vice-presidents, Hooker, Lockett, Place. As assistant secretary, Nickerson was re-elected with a whoop and a vote of thanks. Apart from the reunion much class news has come in. June is the month of weddings, but '02 started in May. A. C. Clapp was married on the 30th to Miss Myrtle Campbell, of Little Silver, N.J.—Mayo on the 11th of June married Miss Julia Middleton Skillman, of Washington, D.C.—On June 3d George married Miss Demetria Simmons. —Hamblet on the 26th married Marcia Leavitt Coburn, at Carthage, Me.—Ritchie, who was married on the 22nd of June to Miss Helen Louise Hurd, completes the list as far as reports are yet in. The future promises more news of the same sort, for Greeley is engaged to Miss Margaret Ellen Houghton, of Lexington, and the following is clipped from the April 6 issue of the Boston *Transcript:*

> Mr. and Mrs. Edward G. Bennett, of Boston, announce the engagement of their daughter, Grace Frances, to Arthur Harold Sawyer, of Delaware, Mich.

Next to be reported are the additions to the Junior Battalion of the class. Karleen Alden Nash arrived March 25.—On April 11 Reed Whitney came to the home of Mr. and Mrs. Philip R. Whitney at Bala, Pa., and on June 7 Esther Caryl Fruit, of Wheaton, Ill., became a member of the class.—Several men not reported for some time are now brought up to date on our rolls. Mague's address is West Newton, Mass., while Coburn can be reached at 76 Summer

Street, Malden, Mass.—Horace Muzzy is with Walter Appleton, architect, 15 Exchange Street, Boston; and Mathesius is with C. Howard Greenley, 12 West 40th Street, New York.—Miss Bates's address is 4 Toledo Avenue, Elmhurst, L.I.—J. Murray Walker is with the Massachusetts Correspondence Schools, 194 Boylston Street, Boston.—Eager has returned to Fredericktown, Mo., with the North American Lead Company.—Fitch has taken a position with the Dennison Manufacturing Company at South Framingham, Mass.—Leonard is with the General Electric Company at West Lynn, Mass.—Mendenhall is now with the Ely Light and Power Company, Ely, Nev.—Lockett is at present at Crawfordsville, Ind., where he is taking charge of the construction of a large power house for the Electric Railway. He returns to his Chicago headquarters, 1517 Monadnock Building, some time next month.—W. C. Taylor is now with the Detroit River Tunnel Company at Detroit.—Eames is with the Cell Drier Machine Company, 84 State Street, Boston. He is living at 47 Crescent Street, Swampscott, Mass.—'02 has representatives in medicine and law, but the following from the Newburyport *Herald* reports our first member to enter the ministry:—

REV. PHILIP C. PEARSON

Ordained to the Diaconate in the Episcopal Church

On Trinity Sunday, May 26, in the Church of Zion and St. Timothy, New York City, Philip Coombs Pearson was ordained to the diaconate of the Episcopal Church by Bishop Greer, of New York. Mr. Pearson is the son of Mr. and Mrs. John F. Pearson, of this city, a graduate of our high school and of the Massachusetts Institute of Technology, Boston. For two years he was with the American Smelting and Refining Company, Perth Amboy, N.J. In 1904 he entered the General Theological Seminary, completing the third-year course there. He graduated on the 15th of May. Rev. Mr. Pearson has been elected to a fellowship by the faculty of the seminary, which will enable him to pursue his studies for five years at the seminary and Columbia University or abroad if he so desires.* In addition to this post-graduate work Mr. Pearson is to be one of the assistants to the Rev. Dr. Manning at St. Agnes Chapel, Trinity Parish, New York City, beginning his work there in the fall.

The good wishes of his classmates will go with Pearson in his chosen work.—W. D. Crowell recently passed the entrance examinations for the École des Beaux-Arts at Paris.—H. C. Bartlett and J. Mc.-F. Baker are spending a year in travel and the study of architecture in Europe. They were last reported from Pæstum, Italy.—Fletcher is still with the New Haven R.R., but has been transferred to Somerset, Mass.—Galaher has been sent by Stone & Webster to Dallas, Tex.—Hollis is now at Randolph, Vt.—Belcher is engaged on the Sewage Purification Works, Washington, Pa.—Shedd is still with Purdy & Henderson. Most of his time is spent at their Boston office, but when at their New York office a short time since he helped in designing the steel for the Hudson Companies Terminal, which will be when erected the largest office building in the world. —William Waterman is with Hegeler Bros., Danville, Ill. The firm is engaged in zinc smelting and making sulphuric acid.—A. A. Jackson is established as a consulting chemist at 672 East 43d Street, Chicago.—Montgomery is now with the Newark Fire Insurance Exchange, 701 Union Building, Newark, N.J.—Pendill is now with the General Electric Company at their Schenectady works.—Ames has returned to the East, and is now superintendent for the Parker Manufacturing Company of Roxbury, makers of recording thermometers and other scientific instruments.—In the last issue we reported that Pember had won a place in the final competition for the New York State Library Building at Albany, being one of ten selected from a large field of competitors and receiving $500 as a prize and a payment of $1,000 for further plans. We can now report that in the final competition Pember won third place, defeating some of the best-known architects in this country and receiving an additional prize of $1,000. While Pember was entered in association with Martin C. Miller, of Buffalo, it is no disparagement of Mr. Miller to state that the credit for the place won rests almost entirely with our classmate.—'02 also deserves further mention in this architectural competition, as Rayne Adams, working temporarily for Mr. Hornbostel, the winner, assisted in developing the winning design.—The secretary has another move to report, but now hopes to stay put for many moons to come. He left the Unaka Company

of Johnson City, Tenn., on April 1, came North, and is now located with the L. P. Soule & Son Company, building contractors of 166 Devonshire Street, Boston. His address for class correspondence is 75 Park Street, West Roxbury, Mass.—At the Technology Club of New York a series of class reunions has been held during the past season. A prize was offered for the best class yell. Of course '02 won, with Place, Annett, Hammond, Brainerd, and Philbrick behind the yell.—Once again we have to chronicle the death of one of our members: W. H. M. Latshaw died at his home in Pueblo, Col., on May 5. While Latshaw had not been in robust health for some time, he had seemed to gain by a trip to Arizona, and the end came suddenly from pneumonia.—A catalogue of the class is to be issued as early as possible. Circulars for information are in preparation, and should reach the members of the class soon after this report. Any member not receiving his blank by September 1 will kindly report that fact to the secretary. An early and complete reply from each member will assist very much in the work of preparing the book.

1903.

WALTER H. ADAMS, *Sec.*, Polytechnic Institute, Brooklyn, N.Y.

The annual dinner at the Brunswick Hotel in Boston was the most successful that the class has held since graduation. Eighteen men were present, and started the dinner with a rousing '03 cheer. The following business was transacted: The present officers are to continue in office until mail elections are held next January. A committee, consisting of Nutter, Newman, and Olmstead, was appointed to draw up a new constitution. During the dinner cheers were exchanged with '93 and '98. Loughlin and King enlivened the dinner with music and songs. After the dinner every one went to the Pops, and there disposed of the remainder of his voice. The following men were present: Aldrich, Atwood, Bridges, M. H. Clark, F. W. Davis, Fales, Hoxie, King, Loughlin, Newman, Nutter,

Olmstead, Ricker, Scholtes, Stiles, Swett, Valiquet, and Yerxa.—The following changes of address and occupation have been received since the first of the year: R. M. Field, 42 Broadway, New York; J. L. Lyon, 834 E. 48th Street, Chicago, Ill.; G. M. Macdonald, 40 Cathcart Street, Montreal, Canada; J. A. Mears, 130 Maiden Lane, New York, is general manager for the Cosio Cigar Company; Merrill may be addressed 120 Hudson Street, New York, care H. A. Metz & Co.; Millard, care Minneapolis Gas Light Company, Minneapolis, Minn., is engineer on construction with Riter-Conley Manufacturing Company; Myers, 317 Andrew Street, Rochester, N.Y., is engaged in the manufacture of novelties; Newman, 175 Mt. Auburn Street, Cambridge, Mass., is assistant engineer on water-works construction with William Wheeler, consulting engineer, of Boston; Nields, The Monterey, Cleveland, Ohio, is secretary of the Reinforced Concrete Construction Company; Palmer, Hagerstown, Md., is superintendent of the Hagerstown factory of the Pope Manufacturing Company; Parker, South Milwaukee, Wis.; S. G. Porter, Lamar, Col., is chief engineer for the Arkansas Valley Sugar Beet and Irrigated Land Company; Regan, 49 Winchester Street, Boston, is a draughtsman with the Boston Sewer Department; A. P. Rice, 34 Chestnut Street, Everett, Mass., is inspector on dredging and construction, Massachusetts Harbor and Land Commission; P. B. Rice, 1317 9th Street, Altoona, Pa., is electrical engineer in the motive power department, Pennsylvania Railroad; Ricker, 92 First Street, East Cambridge, Mass.; Sears, 31 Milk Street, Boston, Mass.; Sibbett, 366 Wilbur Avenue, Columbus, Ohio, is draughtsman with the Jeffrey Manufacturing Company; C. J. Smith, 324 East Jefferson Street, Los Angeles, Cal.; Taylor, Milwaukee, Wis., care Cutler-Hammer Manufacturing Company; Underwood, 2112 Eoff Street, Wheeling, W. Va., is superintendent of Blast Furnace, Riverside Department National Tube Company.

1904.

CURRIER LANG, *Sec.*, Michigan Central Depot, Detroit, Mich.

The Mexican engineering field has been heard from since the last issue of the REVIEW, through two members of our class.—Waldron P. Schumacher, speaks for the mining end of it, in part as follows:—

After my return to Boston, I wrote to Potter, '98, and he gave me a job here in Mexico at a place called Matehuala. I stayed in Matehuala for thirteen months, when I heard of my present position, and applied for it, with the result that I am now located in this place (Sierra Mojada) as engineer for a Mexican mining company.

From a business point of view, I like Mexico, and I think there are ten chances to every one that a man would have in the States. On the other hand, in coming to this country, a man gives up everything which at home we consider as pleasures. This little town is out in the desert a hundred miles from anywhere, and there are only about ten Americans in the place. The grub is fierce, and water scarce. For ten months in the year not a drop of rain falls. I like the company I am working for, and they make things as agreeable as possible.

—H. G. Chapin speaks for the civil end of it:—

I came to Mexico in January, 1906, to start in as topographer and draughtsman. From January, 1906, to April, 1906, I was on a relocation between Colima and Manzanillo, part of the new line constructing to connect Mexico City with the west coast. In April, '06, we were sent on a preliminary and location survey of 125 kilometers north-west of Colima. Nov. 1, 1906, I was transferred to construction west of Colima, and stayed three months until I got the fever, and had to pull out. Since then I have been working on a contract I took to survey a mountain of about 80,000 acres of timber land. I just finished the field-work yesterday. I am now looking forward to getting back to God's country again where one doesn't have to fight mosquitoes, fleas, alicrons, etc. I expect to be in old Beantown again about June 1.

—The fact that '04 fellows have a habit of getting together whenever the opportunity offers is shown by the following information gath-

ered from letters from A. W. Bee and Halsey French. French writes:—

As you know, Kemper, Thurlow, Holbrook, and myself are all in this office [Board of Water Supply, city of New York], each one of us more or less contented, principally less. George H. Shaw, who was once a '04 man, is here also. A few days ago, at a civil service examination, we saw Hill, Biggi, E. F. Smith, and Wilson, '04 (the slender one). Biggi came down from Albany, Hill from Kingston, and Wilson from Boston.

—Bee is in Cincinnati on concrete building construction, Stetson is in Cincinnati for a few months on construction for the Pennsylvania Lines, and a short time ago Weymouth came down to visit them. They showed him the town, and, according to Bee's statement written a week later, neither they nor the town had fully recovered at that time. It is easy to imagine the disjointed condition of that town after those three heavy sports got through with it. Bee is engaged to be married to Miss Maud E. Beder, of Chicago.—H. W. Goddard writes:—

I left Pittsburg a little over a year ago, and am now in Hartford, Conn., in charge of the construction of a four-story, reinforced concrete office building. I expect to complete this job in about a month. . . .

—E. W. Charles is now with the Allis Chalmers Company in the steam turbine department. He likes Milwaukee in spite of its beer renown.—Freeman Cobb is in Toronto, Canada, with the Chapman Double Ball Bearing Company.—W. De Witt Vosbury is with Professor Meade, consulting engineer at Madison, Wis.—The secretary has since the last issue of the REVIEW received an invitation to the wedding of William Hosmer Eager and Miss Helen Lucy Hiscock at Syracuse, N.Y., April 22, 1907, but on account of the distance was not able to represent the class in person nor give the groom away.—The engagement was announced in Washington, in April, by Lieutenant-colonel and Mrs. John S. Loud, U.S.A., retired, of their daughter, Miss Dolne Loud, to Francis F. Longley, of West Point and Technology, '04.—The following information concerning the gentler part of our class is of interest. Miss Ropes

was married Nov. 12, 1906, to Mr. S. P. Williams, Harvard, '97, and is living in Winchester. Between graduation and her marriage Miss Ropes was with Warren H. Manning, the prominent landscape architect, and during part of the time was at Norfolk, Va., as his personal representative in matters relating to the laying out of the Jamestown Exposition grounds.—Miss Marion Coffin, a special with our class, has set up for herself as landscape architect in New York, and has exhibited at several of the recent shows, among them the Architectural League of New York and the T Square Club of Philadelphia.

1905.

GROSVENOR D'W. MARCY, *Sec.*, 246 Summer Street, Boston.

1905 began to celebrate her second anniversary with a class punch, held at the Technology Club, Tuesday afternoon, June 4. The men commenced to gather about four o'clock, and a flow of '05 spirit began that lasted far into the night. At six o'clock the crowd started for the Copley Square Hotel, where dinner was held, as last year, with '04. There were forty '05 men present, some returning from far countries. The dinner was very informal, there being few fireworks, but much heart-to-heart getting together. President Pritchett was with us, and brought the loving cup presented to him by '04. It was filled and passed from man to man, each rising and giving his address, and stating whether married or single. The blushes of '04's Benedicts were beautiful to see. '05's generally hopeful tune was "not yet, but soon." Bob Lord and Harry Wentworth announced their resignations from the offices of secretary and vice-secretary, respectively. Bob is going to Portland, Me., as superintendent with the Casco Tanning Company. The following team was elected to take their places: G. D'W. Marcy, secretary; R. M. Folsom, vice-secretary; and G. B. Perkins, assistant vice-secretary. Resolutions of appreciation and regret were extended to Lord and Wentworth. After the dinner the crowd marched over to Symphony Hall, where we were met with reinforcements. The Pop was a

great success, as always. There was a little excitement when Fletcher, '06, having had one lemonade, thought it was the Boylston Street flag riot he was at, and started for the '05 banner from force of habit.—J. H. Flynn was back on leave of absence from Panama. He is chief draughtsman in the Mechanical Division. He reports that the fellows are all doing well down there, and get together every little while at the University Club or Hotel Tivoli, and have a Tech night.—W. P. Bixby has had charge of tests on which buying of coal is based. Bixby had a couple of weeks of fever, but is all right now.—W. G. Eichler arrived at Panama about January 1. He is drafting repair parts on rock drills.—C. E. Gage is assistant to the master mechanic at Empire, and is building the new repair shops there.—Charles W. Johnston has added unto himself an address that reads as follows: "Care of the Veta Colorado Mining and Smelting Company, Minas Nuevas, Parral, Chihuahua, Mexico." He says:—

> Since the last issue of the REVIEW I have moved my hat rack one mile nearer the United States. That is, I am one mile nearer home, having changed to the mine next north of the Veta Grande, where I have been for the last nine months. Bill Motter, Roy Allen, and Eugene Burton are all within a few miles of me. We get together frequently. I left Parral May 26 for a trip home to Boston, returning to Mexico July first.

Charlie is not going back alone. He was married on June 19 to Miss Sarah Abbott, of Roxbury. Roy Allen came up from Mexico on a flying visit to "stand up with him." The couple were started off with a good '05 cheer by the fellows fortunate enough to be at the reception.—R. S. Gifford was awarded a Savage Fellowship in chemistry this year, and sails in July for Germany, where he will study for a Ph.D.—Miss Ida Ryan, who won second prize in the competition for the Rotch Travelling Scholarship in Architecture last year, distinguished herself and added to the glory of '05 by winning the scholarship itself this year.—Bob Morse is making plans to establish a commission house in Mexico City for the sale of mining machinery. The concern will be known as the International Machinery and Engineering Company, and will also be interested in

power plant development.—Seymour Rivitz, *ex* '05, is a civil engineer in Spokane, Wash.—P. G. Darling is with the Ashcroft Manufacturing Company, Bridgeport, Conn. At present he is on a trip from New York to New Orleans by boat, and will return on locomotives, testing injectors and other apparatus manufactured by this company.—Jules V. Barnd is selling mining properties in New York, and also personally operating properties in Utah and Nevada.—S. B. Littleton, *ex* '05, is engaged in farming in Washington.—Roger P. Stebbins is with the Electric Boat Company of Quincy, which has just completed the United States submarine "Octopus," which made such an excellent record in the recent trials at Newport.—Arthur J. Manson is in New York for the Westinghouse Electric & Manufacturing Company, in connection with the electric locomotives for the New York Central Railroad.—Ros Davis and Bill Wilcox are working together in the factory improvement department of the Singer Manufacturing Company of Newark, N.J.—Bill Motter and Eugene Burton are at the same mine in San Diego, Mexico. Bill is now assistant superintendent, and Gene is engineer, and also in charge of the magnetic zinc separator plant.—W. L. Spalding is sitting up nights with a sixty per cent. increase in the electrolytic refinery of the Buffalo Smelting Works.—Joe Daniels has a position for the summer with the Dominion Coal Company at his old stamping grounds, Glace Bay, N.S. He expects to return to Lehigh University as instructor in the fall.—E. M. Coffin reports meeting Harry Upham, of Glee Club and Tech Show fame, travelling in New Hampshire for the Simplex Piano Company.—E. L. Hill is assistant mechanical engineer with the American Steel and Wire Company of Worcester.—A. L. Whitmarsh is assistant to the city engineer of Lamar, Col.—R. D. Farrington is studying law at Harvard Law School.—Arthur E. Russell is in the testing laboratory at the Watertown Arsenal.—F. W. Goldthwait is with the Boston office of the Lanston Monotype Machine Company, in the installation and maintenance department.—C. Saville is with the engineering department of the Massachusetts State Board of Health.—LeBaron Turner is with the United States Wind Engine and Pump Company at Batavia, Ill.—S. A. Greeley is with Hering & Fuller, sanitary

engineers, New York.—H. Atwood has returned to the Institute to complete his course in electrical engineering.—R. F. Gale returned to the Institute last fall, and received his degree this June with '07. —A. H. Abbott returned and got his degree in Course VI. this year, after two years' leave of absence spent in practical work with the General Electric Company at Lynn. He is going to Pittsfield to take a position in the transformer department of the same company. —Six men have left the instructing staff at the Institute to accept positions as follows: W. Tufts and C. T. Humphreys are with the McClintic Marshall Construction Company of Pittsburg. Tufts' address is 21 Park Row, New York City.—F. C. Starr has joined the instructing staff of George Washington University at Washington, D.C.—R. W. McLean is with the Carver Cotton Gin Company of Bridgewater.—A. L. Smith is with the Bixby Blacking Company of New York, N.Y.—Macintire is with the National Lead Company of Brooklyn.—F. J. Chesterman has recently become connected with the New York Telephone Company. There is a rumor that he is to be married in October.—A. D. Maclachlan is looking for Walter L. Whittemore.—Edwin B. Snow writes that he has no news, but is about to announce his engagement, and thinks this is a good time to do so. It's news to us, Eddie.—O. C. Merrill was married last October to Miss Elizabeth V. Watson, and is now assistant hydraulic engineer with the O. Rand Company of Berkeley, Cal.—Charles E. Smart was married June 12 to Miss Effie J. Cook, of Greenfield, Mass. Charlie is now assistant superintendent of the A. J. Smart Manufacturing Company of Greenfield.—Percy A. Goodale was married to Miss Hope Leonard, of New Bedford, on June 15.— Walter Bent announces his engagement to Miss Bessie Brackett, of Rochester, N.Y. He is still with the Eastman Kodak Company, and writes that Jimmy Payne has left them, and is now working for a new cement concern at Catskill, N.Y.—H. R. Robbins has severed his connection with the New Hampshire Concentrated Milk Co., and is now engaged as inspector on the Pennsylvania tunnels under the East River. He resides at 220 E. 36th St., Suite 6, New York, N.Y.—The secretary wishes to state that the mantle dropped on him at so nearly the same time as the

call for REVIEW notes that he did not have time to collect much information about the fellows. He also wishes to urge everybody, whenever an item occurs to them that might be of interest, to confide said item to a postal card, and post it to him. Thus would this compilation become an automatic pastime, which is what he wants.

1906.

THOMAS L. HINCKLEY, *Sec.*, 745 Osceola Avenue, St. Paul, Minn.
ANGELO T. HEYWOOD, *Res. Sec.*, Mass. Inst. of Tech., Boston, Mass.

The July notes for our class are summed up for our convenience in reference in the following

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IV. Account of Reunion and Celebrations.
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V. General Report on Finance of Reunion.
VI. Report of Committee on Nominations for Class Officers.
VII. Other Reunions.
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VIII. Personal Notes and Replies to "additional information about self or classmate."
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In Memoriam.

II. The following letter was mailed to all members of the class May 14, 1907:—

CLASS OF 1906
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

To the members of the Class of 1906:

Herewith are sent you complete announcements concerning our First Annual Reunion and Commencement Celebration, and details concerning class organization and other business. The arrangements are in charge of a General Committee, as follows:—

Chairman	ANGELO T. HEYWOOD (III.)
Constitution	JOSEPH T. LAWTON, Jr. (II.) MAXWELL A. COE (II.) EDWARD B. ROWE (VIII.)
Program	JOSEPH T. LAWTON, Jr. (II.)
Class Dinner	HERBERT A. TERRELL (II.)
Hospitality	RALPH R. PATCH (XI.)
Publicity and Correspondence	HERBERT S. WHITING (VI.)

Your careful attention is asked.

MAXWELL A. COE, *President.*
ANGELO T. HEYWOOD, *Resident Secretary.*
For the Class.

The FIRST ANNUAL REUNION of the Class of 1906, M. I. T., will be held TUESDAY, JUNE 4, 1907. During the entire day the Alumni Association and the Association of Class Secretaries will maintain open house, and a SPREAD will be held at the Technology Club for all Tech alumni. The club-house will be the headquarters for the class, and a Reception Committee will be on hand to greet the members of the class. Material for registration will be provided and all questions answered.

At 5.45 P.M. (*sharp*) the REUNION AND DINNER will be held at the HOTEL PLAZA, COLUMBUS AVENUE, Boston, Mass. Price per plate, $1.25. The guests of the evening will be: Mr. James P. Munroe, of the Corporation; Dean Burton; and Bursar Rand.

After the dinner the class will adjourn in a body to the POPS, full particulars of which are being sent you by the Pops Committee of the Alumni Association and Association of Class Secretaries. It is necessary that an early reply be sent to them, in order that ample accommodations may be provided for the grouping of such a large number as will represent our class.

It is the custom for the distant as well as the near-by members of the classes to make special effort to return to Boston at this time to meet old friends again. You are urged to join in the celebrations. "Times change, but Friendships never."

Concerning the ORGANIZATION OF THE CLASS for its alumni life, the following is quoted from the '06 Class Notes in the January, 1907, number of the REVIEW:—

"It may have been remarked that the [present] constitution, in so far as it applies to the election of officers, has been allowed to lapse. This was done in order that the machinery of the class after graduation might be gotten fairly under way before a change was made in organization.

"To be loyal to the Institute, we must keep our class organization strong. To have a strong class organization requires the interest of the members. Members take interest only when something is being done by the class. No one cares to be busy unless there is some real work in sight and a definite, practical object to be gained. It is therefore evident that the problem of organization brings with it the question of what particular life-work our class proposes to take up for its alumni career. Before any change is made, the matter is open for general discussion. The Secretaries wish that the members would write to them, and state their opinions on the subject."

In reply to this request, several men offered suggestions, which, however, were more in regard to the method of organizing the class than in regard to any definite object which we shall as a class undertake, and which shall result in direct and substantial benefit to the Institute.

In regard to class *organization* a CONSTITUTION has been prepared, a copy of which is enclosed for your consideration. Provision is made on the Reply Sheet for the casting of your vote in regard to the acceptance of this Constitution. The results of this vote will be announced at the dinner, and later by mail to those who do not attend the dinner.

In regard to the *definite object*, it is proposed that this matter be taken up further as soon as the class organization is completed, and that a final decision be reached as soon as possible. The proposition will then be put before the whole class again for final approval.

The following is a summary of the accounts of Class Day Committee:—

Receipts

Subscriptions and invitations	$1,249.25
Dinner	409.50
Senior Dance	164.00
Miscellaneous	2.05
	$1,824.80

Expenditures

Class Treasurer's Account	$122.96
Dance Invitations	30.88
Orchestra	40.00
Florist	185.00
Class Day Spread	250.00
Class Dinner	369.00
Menus	31.50
Decorations (Spread)	30.00
Fountain (the Class Gift)	175.00
Miscellaneous	276.21
Balance	314.25
	$1,824.80

The bill for the fountain was not paid until March, 1907, and the payment of the bill cut down the balance.

Of this $314.25, turned into the Class Treasury, $39.25 was paid to the Class Secretaries and has been expended in sending out the cards for information, completing the Card Catalogue of the Class, and for correspondence. The balance of $275 remains in the Class Treasury, and is on deposit at the Bursar's office.

Two suggestions have been offered for the disposition of this sum; namely, that it be used:—

(1) As a permanent gift to Bursar Rand's Scholarship Fund for needy students, or

(2) To form the nucleus of a fund to be raised by the class, the amount of which shall be such that the annual interest yielded will be sufficient to defray the current expenses of the class. The object of this is to abolish in time class dues, and, when said fund is no longer necessary for such use, the same shall be given to a Scholarship Fund of the Institute.

It is desired that each member of the class express his preference in his reply to this letter.

Up to the present, out of a total of 761 members on the roll of the class, over 500 have been heard from. In order that the roll may be completed and corrected to date, it is requested that pains be taken in filling out the accompanying Reply Sheet, particularly in regard to information about any classmate who you think may not be enrolled on the class lists. Notes may be added for publication in the REVIEW.

As is the usual custom, it is proposed to announce at the dinner the average SALARY of the members of the class. For this purpose we are enclosing a slip upon which your salary is to be written, which slip is to be returned in the envelope, addressed to Dean Burton. The Dean has consented to receive these sealed envelopes and to shuffle them so that it will be impossible to ascertain to which individual the salary upon any slip may belong. It is hoped that every one will include this data in his reply, as an *average* figure is desired.

Inasmuch as a Constitution to govern us as alumni is yet to be adopted, it is considered not

advisable to levy any regular ASSESSMENTS. It is, however, necessary to have money to send out these notices and carry on the work of the class, and a voluntary contribution is hereby requested. It is thought that the amount of the average contribution will be $1. We hope that those who do not feel able to give this amount will contribute something.

Round Robins are reported to be in circulation among the members of different courses. Courses I., III., and VI. are those which have been heard from up to the present time. The secretaries would like to be notified of any others that are in circulation, and also to receive detailed information on the above-mentioned in regard to the number of letters received, etc

The ALUMNI RECEPTION will be held on FRIDAY, MAY 31, 1907, at 8 P.M., in ENGINEERING B, on Trinity Place. Admission, $1. Refreshments will be served. It is hoped that our class will be well represented at this reception to '07, as we are probably better known to them than any other class of the Alumni Association.

One hundred and thirty-nine members of our class are subscribers to the TECHNOLOGY REVIEW. If you are not one of these, you are urged to subscribe at once, as this is the principal source of information concerning the Institute and your classmates.

It is very earnestly requested that every one who receives this letter take the trouble to fill out and return the Reply Sheet, which is enclosed, together with an addressed envelope for mailing it. It is absolutely necessary that we hear from every one promptly, so don't put it off. Answer at once. Sit down, take your fountain pen in hand, and DO IT NOW.

General Committee on Arrangements.

BOSTON, MASS., May 14, 1907.

N.B.—Extract from proposed Constitution: "Article III. Membership. All graduates of 1906 and all former students who have taken subjects with the Class of 1906 may be considered members." If you do not consider yourself a member of '06 as outlined above, will you be good enough to make note of same on reply sheet that we may correct our roll.

.....

(*Tear off here.*)

REPLY SHEET.

YES, I (*name*).....will be present at the First Annual '06 Reunion and Dinner at 5.45 P.M. on June 4, 1907, at the Hotel Plaza, Columbus Avenue, Boston, Mass.

No, I (*name*).....will not be present at the First Annual Reunion and Dinner of my class. Excuse:—

1. *Dead?*
2. *Sick?*
3. *Broke?* *
4. *Weary of life?*
5. .....?

* N.B.—The highest price per plate that I would feel able to pay is $....

My vote on the adoption of the Constitution is [YES NO]

I am in favor of the (*1st or 2d*).....of the suggested methods of disposing of the sum of $275 which remains in the class treasury.

My permanent address is.....

My mail address is.....

My occupation is.....

Additional information about self or any classmate.....

.....

I enclose herewith in the separate envelope addressed to Dean Burton the slip on which is marked my present yearly salary. This envelope is to be delivered unopened, together with the similar envelopes received from the other members of the class, to our classmate Dean Burton, who will carefully shuffle them and deliver them to a committee chosen by him to duly open them, tabulate the figures, and prepare a report to be read at the dinner.

I enclose herewith the sum of $.....as my contribution to the class treasury.

Date..... (*Signed*).....

The letter was mailed on schedule time, May 14. Acknowledgment is due to the following fellows who gathered at the Technology Club and helped the Committee mail the 761 letters in three hours: C. L. Anson, O. B. Blackwell, B. W. Kendall, J. A. Root, A. B. Sherman, R. W. Ware.

III. The Constitution proposed follows:—

THE CLASS OF 1906
MASSACHUSETTS INSTITUTE OF TECHNOLOGY
CONSTITUTION

ARTICLE I.

NAME.

This association shall be named the Class of 1906 of the Massachusetts Institute of Technology.

ARTICLE II.

OBJECT

The object of the Class of 1906 of the Massachusetts Institute of Technology shall be:—

1. To promote the common association of all of the members of the class.

2. To promote the welfare and interests of the Massachusetts Institute of Technology.

ARTICLE III.

MEMBERSHIP

All graduates of 1906 and all former students who have taken subjects with the Class of 1906 may be considered members.

ARTICLE IV.

GROUPING OF MEMBERSHIP

SECTION 1. The membership of the class shall be made up of geographical groups of members as follows:—

1. The Central Branch, consisting of those members residing in and about Boston.

2. The New York Branch, consisting of those members residing in and about New York City.

3. The Philadelphia Branch, consisting of those members residing in and about Philadelphia.

4. The Pittsburg Branch, consisting of those members residing in and about Pittsburg, Pa.

5. The Panama Branch, consisting of those members residing in the Canal Zone.

6. Or a Branch at any other centre where there are members to organize it.

SECT. 2. These and other branches, small or large, may be organized in the manner prescribed in this Constitution, for the purpose of aiding in attaining the objects of the class.

ARTICLE V.

OFFICERS

SECTION 1. The governing power of the association shall be vested in an executive council of five members, all of whom are residents of Boston or vicinity.

SECT. 2. The Council shall consist of a secretary, assistant secretary, and three directors. One of these directors shall be chosen chairman by the council.

SECT. 3. One member of the executive council shall be elected each year to serve three years; and the secretaries shall be elected every two years. These officers shall hold office until their successors shall have been duly installed.

SECT. 4. The chairman of executive council shall preside at all meetings of the class and of the executive council. In the absence of the chairman the presiding officer shall be chosen by a majority of those present.

SECT. 5. The executive council shall have authority to fill all vacancies in its own body.

SECT. 6. It shall be the duty of the executive council to conduct all affairs of the class.

SECT. 7. The council shall have charge of the finances of the class, except that it shall not have charge of the permanent fund.

ARTICLE VI.

SECRETARIES

The secretary shall keep a record of the proceedings of the class and the council, aided by the assistant secretary and the secretaries of the different branches. He shall have the custody

of the documents of the class. It shall be the duty of the secretary to keep a roll of the members of the class, and issue notices of all meetings of the class. The secretary shall receive his necessary funds from the executive council by appropriation. The establishment of representative correspondence for the unorganized groups, small or large, of members of the class, shall be arranged for by the secretary. He shall represent the class in the Association of Class Secretaries.

Article VII.

ELECTIONS

Section 1. Before April 1 of each year the executive council shall appoint a nominating committee of three who shall nominate at least two men for each office. Should ten or more members of the class wish to nominate a candidate for office, they may forward name of said candidate, indorsed in writing by at least ten, to the nominating committee, who shall place name of candidate upon ballot.

The secretary shall send each member of the class a ballot at least thirty days before election.

Sect. 2. Elections of executive council, permanent fund trustees, and secretary and assistant secretary, shall be by mail ballot, and must be in the hands of the council by the first of June of each year.

Article VIII.

CENTRAL BRANCH

It shall be the duty of the Central Branch:—

1. To endeavor, by all possible, laudable means, to keep the other distant members of the class informed about the progress of things at the Institute and among the class.

2. To have charge of all class dinners and all arrangements that properly pertain to local work.

3. To hold regular monthly meetings for the promotion of good fellowship and the transaction of business.

4. To assist the secretaries in editing the class notes for the Technology Review or any other publication.

Article IX.

ORGANIZATION OF BRANCHES OTHER THAN THE CENTRAL

Branches other than the Central Branch may be recognized after organization. They shall have a secretary and any other officers which are necessary for the proper execution of the work of the branch. It shall be the work of the branches other than the Central Branch to hold regular meetings at stated times, in convenient centres, co-operating with any of the local Technology Clubs to devise ways and means whereby they may acquire and intelligently consider information on matters concerning the progress of the work of the Institute.

Article X.

PERMANENT FUND

A fund shall be raised by the class, the amount of which shall be such that the annual interest yielded will be sufficient to defray the current expenses of the class. The object of this is to abolish in time class dues, and, when said fund is no longer necessary, the same shall be given to a scholarship fund of the Institute. This fund shall be in the hands of three trustees who shall hold office for three years, one elected every year. One of these trustees shall be a resident of Boston or vicinity, and their election is to take place at same time and in same manner as for the executive council.

ARTICLE XI.

MEETINGS

SECTION 1. The annual meeting of the class shall be held on Commencement Day in June; and there shall be held such additional meetings as the executive council shall appoint. Three weeks' notice of all meetings shall be sent every member of the class by the secretary.

SECT. 2. Special meetings of the class may be called at any time by the executive council, and shall be called by the secretary upon written request of ten members of the class.

SECT. 3. The executive council shall hold stated meetings on the second Monday in October and January and the last Monday in April.

ARTICLE XII.

ASSESSMENTS

Until the formation of the permanent fund, the annual interest of which shall be sufficient to defray the annual expenses, the annual assessments shall be one dollar for each member.

ARTICLE XIII.

RATIFICATION

SECTION 1. This Constitution, when ratified by two-thirds of those voting, shall take effect and shall supersede previous constitutions of this class.

SECT. 2. The polls shall close June 1, 1907.

ARTICLE XIV.

AMENDMENTS

This Constitution may be amended by two-thirds vote of those voting. Voting shall be carried on in same manner as in election of executive council.

IV. *Account of Reunion and Celebrations.*—An account of the Alumni Reception will be found in another part of the REVIEW.

The Spread was held with the rest of the classes at the Technology Club. The following invitation was sent out by the Association of Class Secretaries "Committee on Spread" to all the women who have been students at the Institute, residing in the vicinity of Boston:

You are cordially invited to attend the "spread" to be given by the Association of Class Secretaries at the Technology Club, 83 Newbury Street, on Tuesday, June 4, 1907, from three to six o'clock. . . .

It is the opinion of the committee that the women who have been students at the Institute should take an active interest in the celebrations of Commencement Week, and it is hoped that the annual "spread" may furnish the opportunity, which has been lacking in the past. Members of the Massachusetts Institute of Technology Women's Association will be present to welcome you and your friends.

In connection with this a special effort was made by the class of

'06 to have the ladies of the class which has been out one year serve at the Spread, and be most active in helping welcome the reunionists. Of our class the following women served: Mildred E. Blodgett, Anna M. Cedarholm, Jane B. Patten, Lillie C. Smith, Marion Hibbard Thanisch.

Miss Hunnewell, Miss Manning, Miss Wheeler, Miss Ruggles, Miss Hosmer, and others were heard from, but could not arrange to be present, chiefly on account of the rather short notice to prepare to come from a distance.

Every one was asked to register in the Alumni Association Register, and each member of '06 received one of the '06 reunion badges on which to write his name. About forty from '06 were present. The attendance from our class was very good, considering the lack of advertisement. The Spread gives the best opportunity of any for reunion during Commencement Week.

The class dinner was held at the Hotel Plaza, Columbus Avenue, Tuesday, Commencement Day, at 5.45 P.M. The toastmaster was Herbert A. Terrell. The guests were Mr. James P. Munroe, of the Corporation, and Bursar Rand. Dean Burton was unable to be present on account of sickness at home.

The count went round, and showed a total of seventy present. The following list shows those who expected to be present:—

M. J. Ahern, C. L. Anson, H. J. Ball, L. N. Bent, O. B. Blackwell, A. A. Blodgett, C. F. Brietzke, H. W. Brown, G. E. Burnap, G. W. Burpee, E. S. Campbell, E. S. Chase, M. A. Coe, R. S. Clarke, F. E. Dixon, E. C. Evans, W. F. Farley, H. L. Fletcher, H. V. Fletcher, H. A. Frame, H. A. Ginsberg, P. K. Griffin, H. B. Hallowell, C. E. Hamilton, C. E. Hanson, C. W. Hawkes, M. W. Hayward, A. T. Heywood, H. P. Hollnagel, C. M. Hutchins, H. O. C. Isenberg, A. H. Jannson, J. W. Johnson, C. L. Kasson, R. Kibbey, B. W. Kendall, A. L. Lampie, J. T. Lawton, Jr., D. A. Loomis, H. D. Loring, E. S. Manson, A. P. Mansfield, A. P. Mathesius, J. H. McKernan, C. A. Merriam, H. K. Merrow, W. N. Messenger, J. E. L. Monaghan, C. W. Mowry, S. A. Nash, U. J. Nicholas, J. F. Norton, H. L. Ober, R. R. Patch, F. S. Phelps, F. W. Poor, R. O. Reed, C. D. Richardson, R. W. Rose, W. L. Rowell, J. V.

Santry, A. B. Sherman, Jr., A. L. Sherman, W. C. Spencer, E. C. Stanton, E. C. Steinharter, A. W. Talbot, A. C. Taylor, H. A. Terrell, K. E. Terry, Jr., F. J. Van Hook, T. G. Webber, H. S. Whiting, M. G. Wight, S. C. Wolfe, D. M. Wood. Others were present.

Such a large number of fellows around one board made it seem like old times at our undergraduate dinners. Mr. Rand was the first guest to arrive. The fellows were, indeed, glad to see him again. He was with us during the first part of the evening, later having to be with the class of '93. In speaking of the Institute, Mr. Rand touched upon its continued labors in behalf of the students, and said his own work had become a work of love.

Mr. Munroe could not be with us during the early part of the dinner, as his time was divided up between three dinners, the chief of which was the celebration of the twenty-fifth anniversary of his class, '82. Meanwhile the reports on the replies to the various portions of the May letter were heard and business carried on.

Herbert S. Whiting gave a summary of the votes on the constitution and the disposition of the $275; also on the contributions.

The total number of replies received was 178. Of these, 155 voted in favor of the proposed constitution, 1 voted against it, and 22 gave no vote at all.

The vote on the disposition of the balance in the class treasury was as follows:—

Forty-seven favored the first suggestion: to make it "a permanent gift to Bursar Rand's Scholarship Fund for Needy Students." A hundred and twenty-five favored the second suggestion: "To form the nucleus of a fund to be raised by the class, the amount of which shall be such that the annual interest yielded will be sufficient to defray the current expenses of the class. The object of this is to abolish in time class dues, and, when said fund is no longer necessary for such use, the same shall be given to a scholarship fund of the Institute." One favored neither suggestion; and four did not vote either way.

The voluntary contributions received up to the time of reporting were as follows: ninety-four gave $1 each; one thoughtful one gave $1.10; two gave $2 each; one member sent $3; two sent $5 each;

and one sent $10, enclosing a note stating that the money was to be used, as was seen fit for the benefit of the class. The total amount subscribed was $122.10. Parenthetically, the secretaries wish to add here that contributions are still coming in, and up to the time this account goes to press the following additional amounts have been received: four sent $1 each; one sent $1.12; one sent $5. The grand total at this date is $132.22. This will probably be increased, as more replies are expected. The competition is still open.

For additional information on the replies the reader is referred to Section VIII. of these notes.

Joseph T. Lawton, Jr., made some explanatory remarks on the constitution, showing why it was thought best not to include a special article in the constitution, limiting the procedure for the first elections.

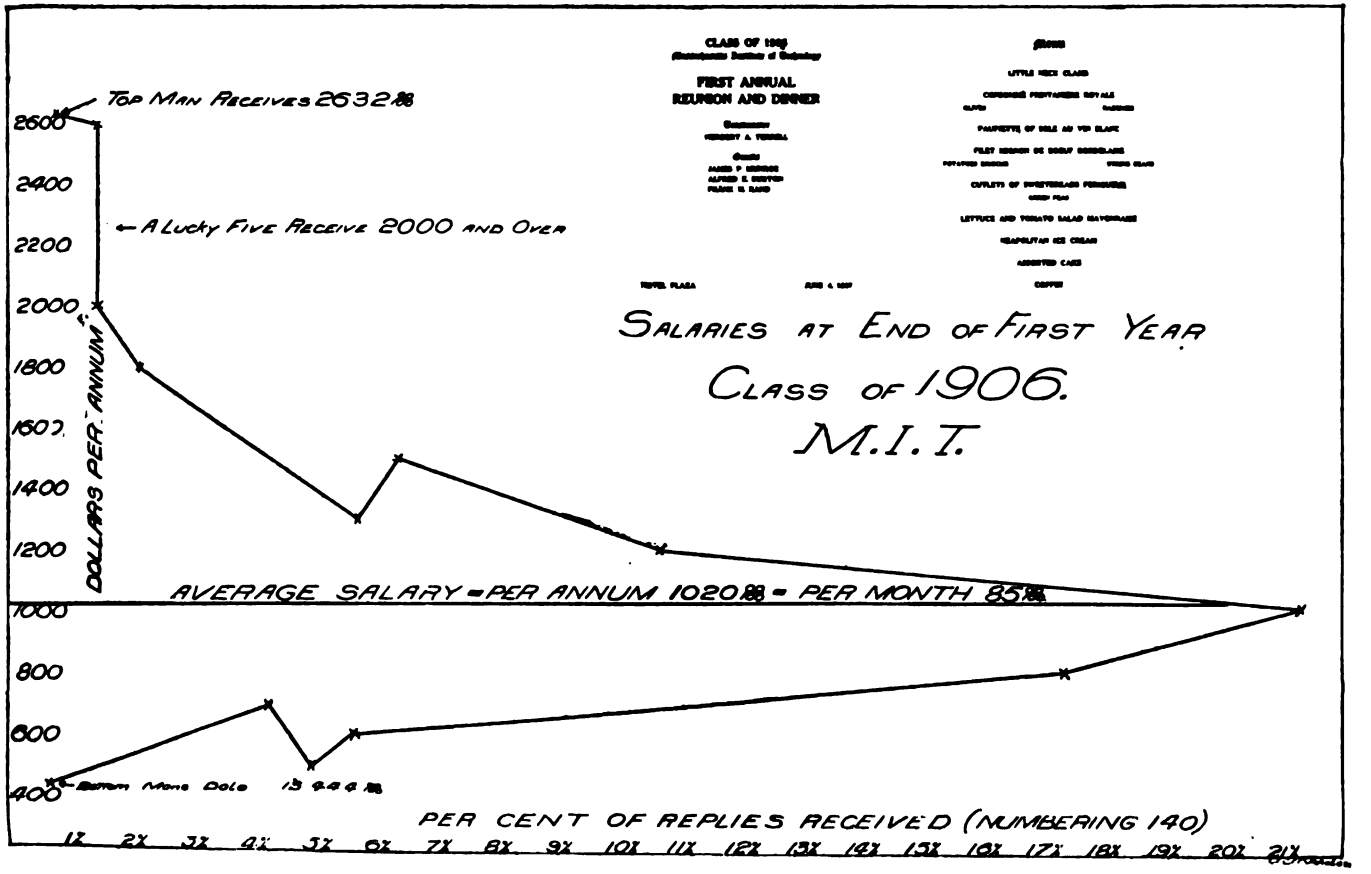
The Constitution was declared ratified, and the second method of utilizing the fund approved.

It was the sense of those present that a committee on nominations should be appointed by the toastmaster, with directions to report to the resident secretary the names of candidates for class officers. The following were appointed: Joseph T. Lawton, Jr., Anthony P. Mathesius, Ralph R. Patch.

Angelo T. Heywood read a letter from Wallace R. Hall, now in Porto Rico, and spoke of the helpfulness of the REVIEW for keeping in touch with each other and measuring one's progress. He asked that members give careful attention to the letters sent to the class.

In accordance with the statement on the reply sheet of the May letter, all the salary envelopes received were delivered to our classmate, Dean Burton, who carefully shuffled them, and delivered them to a committee chosen by him to duly open them, tabulate the figures, and prepare a report to be read at the dinner. Dean Burton appointed for this committee Utar James Nicholas, who prepared from the returns the interesting chart of large size which he exhibited at the dinner, and which is reproduced on another page in these notes.

The chart clearly shows that the particular salary per year received by the largest number of those who replied was $1,082. It is to be observed that this is not the lump average, but shows clearly what is the commonest salary received. The lowest amount received was



Salaries at End of First Year
Class of 1906.
M.I.T.

$444, and at that time the highest one reported was $2,640. Quite a number of replies came in too late for tabulation; and very recently a batch which has been accumulating was opened, and revealed a new high-water mark of $3,000 per year. Hurrah for 1906!

Mr. Munroe came directly from his own class dinner, and brought with him the thoughts of those who, having been out in active life for twenty-five years, were now arrived at the time when they were more or less settled in their directions of endeavor, and could look back to see what had been the things worth while and of benefit to them in their associations since graduation from the Institute. He gave us the benefit of these thoughts, saying that the lifelong friendships formed were the things which, in times of failure, brought human sympathy and in times of success hearty congratulations, and helped one on to higher endeavor.

Cheers followed, and songs were sung. Henry D. Loring replied to a call for volunteer at the piano. After the "Stein Song," the "New Cheer Song," "Dear Old M. I. T." was given, and the fellows came in strong on the chorus which follows:—

"Fight on, boys, we are cheering for you,
For we want you to win to-day;
Do your best, we are all behind you,
And are wearing the red and gray.
Though the odds may be great against you,
Full of sturdy courage be;
And we'll raise a song of vict'ry
For dear old M. I. T."

With cheers the fellows adjourned in a body to the Pops.

V. *General Report on Finance of Reunion.*—The following summary will give an idea for what the class money has been used:—

Printing of letter, constitution, envelopes, and slips	$50.00
Envelopes and paper for same	11.00
Stenographer and clerical work	12.00
Telephone calls, postage, and miscellaneous expenses (about)	15.00
Total	$88.00

When these bills have been paid, about $40 of the contributed money will remain, to be promptly used for printing and sending out to all members of the class the report of the First Annual Reunion.

In printing the Constitution, an error was made in Article X. It read, "This fund shall be in the hands of three trustees who shall hold office for three years, one elected every two years," and should be corrected to read " . . . for three years, one elected every year."

VI. *The Report of the Committee on Nominations for Class Officers* is as follows, and is to be sent in ballot form to all members of the class:—

For Secretary . . . . . F. A. BENHAM (I.), of Boston.
A. T. HEYWOOD (III.), of Boston.

For Assistant Secretary . . HARRY W. BROWN (VI.), of Roxbury.
U. J. NICHOLAS (VI.), of Roxbury.

For Directors on the Executive Council . . . . .
R. E. CRANSTON (II.), of Providence, R.I.
J. N. MCKERNAN (I.), of Boston.
R. R. PATCH (I.), of Stoneham.
R. O. REED (III.), of Malden.
G. C. SIMPSON (I.), of Malden.
H. A. TERRELL (II.), of Newton.
F. J. VAN HOOK (I.), of Roxbury.
H. S. WHITING (VI.), of Roxbury.
Vote for three.

For Trustees . . . . . .
M. A. COE, of Medford.
C. L. ANSON, of Boston.
T. L. HINCKLEY, of Columbus, Ohio.
H. C. HENRICI, of Sabetha, Kan.
H. W. NABSTEDT, of Boston.
Vote for three. One must be resident of Boston.

Of the three men chosen as Directors on the Executive Council, the one receiving the highest number of votes shall hold office for three years, his term expiring June 1, 1910; the one receiving the second highest number of votes will hold office for two years, his term expiring June 1, 1909; the one receiving the third highest num-

ber of votes shall hold office for one year, his term expiring June 1, 1908.

The terms of the Secretary and Assistant Secretary elected at this time shall expire on June 1, 1909.

Of the three men chosen as permanent fund trustees, the one receiving the highest number of votes shall hold office for three years, his term expiring June 1, 1910; the one receiving the second highest number of votes shall hold office for two years, his term expiring June 1, 1909; and the one receiving the third highest number of votes shall hold office for one year, his term expiring June 1, 1908.

The polls shall close September 1.

JOSEPH T. LAWTON, Jr.,
RALPH R. PATCH,
ANTHONY P. MATHESIUS,
Committee on Nominations.

VII. *Concerning Other Reunions.*—At M. I. T. alumni dinner, Jan. 18, 1907, the following '06 members were present:—

Charles L. Anson, Thomas Gray Webber, Harry H. West, Sylvester C. Wolfe, Angelo T. Heywood.

The following reunions have been noted:—

An alumni dinner of Pittsburgers was held in the spring.

In April the following card was sent out to those of the class of 1906 then at the Institute:—

"POW-WOW"

To those of the Class of 1906 *now at the Institute:*

In response to numerous requests from the members of '06 now at the Institute that they meet together before the end of the school year, a committee has been appointed to arrange for a "pow-wow" at the Technology Club. Two dates are offered, Monday, April 29, and Thursday, May 2, preferably *the former*. The hour is 6.30 P.M. Price per plate, not over 85 cents. Please indicate which date you would suggest. Your reply should be mailed not later than Thursday night, April 25. Announcement of date will be made by post card to those who reply.

Very truly yours,

ANGELO T. HEYWOOD.

APRIL 22, 1907.

Twenty-eight men were present, and the courses were represented as follows:—

Course I. Van Hook, H. D. Loring, Shedd, Dorsey, Chidester, W. G. Waldo, Ranney.

Course II. Fuller, Wilkins, Turnbull.

Course III. Frame, Hallowell, Heywood.

Course IV. Moore.

Course V. Norton, Wilcox.

Course VI. Blackwell, R. S. Clarke, Manson, C. D. Richardson, A. B. Sherman, Jr., Whiting.

Course VIII. B. W. Kendall, Danash, Rowe.

Course XI. E. S. Chase.

Course XIII. R. L. Dyer.

VIII. *Personal Notes.*—The following personal notes and replies, *not alphabetically arranged*, received by the secretaries, give an idea of the strenuous work and good times which the class of '06 are enjoying: Robert H. Booth, who has been with the American Telephone and Telegraph Company, Philadelphia, has gone westward to take a position with the Republic Iron and Steel Co. in Moline, Ill. He has resigned from the office of secretary-treasurer of the Technology Club of Philadelphia. All matter for the club may, for the present, be sent to Percy E. Tillson, '06, at 3411 Walnut Street, Philadelphia.—An account of Clarence E. Carter's wedding, clipped from the Boston *Sunday Globe* of April 7, follows:—

READING, April 6.—Miss Alice Sanders Kidder, daughter of William Kidder, of 26 Lowell Street, was married this evening to Clarence Elmore Carter, son of Adelbert Carter, of 19 Grand Street, at the home of the groom's parents, by Rev. Frank S. Hunnewell, pastor of the Congregational church, the couple standing in a floral alcove. The wedding march was played by Miss Marion Flint, cousin of the groom. Miss Marjorie Ada McLeod, niece of the bride, and gowned in white muslin, was a dainty ring-bearer.

The bride was gowned in white batiste, and wore a veil caught up with orange blossoms. She carried bride roses. A reception, attended by seventy-five guests, followed, Mr. and Mrs. Carter being assisted in receiv-

ing by their parents. The ushers were Master Carl F. Wiechmann, of Reading, nephew of the bride, and the Masters Baker of Manchester-by-the Sea, nephews of the groom. The home decorations were in white and green.

To-morrow night Mr. and Mrs. Carter start for Schurtz, Nev., where the former is employed as a civil engineer on the Oregon Short Line Railroad. He is a graduate of the Reading High School and the M. I. T.

—"Edward L. Mayberry and Llewellyn A. Parker wish to announce that they have established an office for the practice of structural steel and reinforced concrete engineering under the firm name of Mayberry & Parker, with offices at 372–373 Pacific Electric Building, Los Angeles, Cal."—H. W. Beers, who has been assistant in the Civil Engineering Department, has taken a position with the Southern Ferro Concrete Co., Atlanta, Ga. He is going to help build a subway in Atlanta, and also other large reinforced concrete construction work in Georgia.—Atwood E. Rippey (III.) came east from San Diego to Boston early in the summer.—Stanley M. Udale broke both the Technology and New England Intercollegiate Athletic Association records in the 2-mile at the Worcester meet this spring, the time being 9 minutes, 52$\frac{4}{5}$ seconds at Worcester, Mass. E. H. Lorenz, '05, had previously held Tech's record at 10 minutes, 20$\frac{3}{5}$ seconds, while O. N. Bean, of Brown, had held the New England Intercollegiate Athletic Association record at 10 minutes, 3$\frac{3}{5}$ seconds. The American collegiate record is held by A. Grant, of Pennsylvania, at 9 minutes, 27 $\frac{4}{5}$ seconds.—The following was clipped from the Newton (Mass.) *Circuit* of April 20, 1907:—

Wallace R. Hall, of Winchester Street, Newton Highlands, a graduate of the Massachusetts Institute of Technology, class of 1906, has been called to Porto Rico to take charge of extensive engineering operations.

— C. A. Merriam (II.) is reported to be with a shoe manufacturing concern on Congress Street, Boston.—Wier Louis Rowell, who was with B. F. Sturtevant & Co., Hyde Park, is now a real estate dealer. Address, Swampscott, Mass.—The following concerning one of our classmates was clipped from the Boston *Herald* of April 12, 1907:—

Tired of the pleasures of society, Joseph, son of Professor Thomas Dwight of the Harvard Medical College, has become a monk.

He entered the Trappist Monastery of Our Lady of the Valley at Lonsdale, R.I., April 1.

Although but twenty-one years of age, young Dwight has given much reflection on the matter, and after a consultation with his spiritual director, the Rev. Thomas I. Gasson, S.J., president of Boston College, he announced his intention. His decision did not meet with any opposition from his parents.

His life at the monastery will be one of a recluse. Silence is mandatory among the Trappists, with the exception of the morning salutation, "Memento mori."

The Trappist's day is spent in tilling the soil or in other laborious work. At night he retires to his hard couch, arising at the stroke of midnight to spend three hours in prayer. One of the most notable features of the Trappist's life is that each day each monk must dig a part of the grave he is to occupy.

Young Dwight was formerly a student at Technology, but left the Institute before the completion of his course to enter the employ of Houghton, Mifflin Company with whom he remained a year. A severe illness compelled him to give up his position, and on his recovery he decided to devote his life to religion.

—Guy Ruggles (III.) came home on a month's vacation about the first of July.—The number of marriages and engagements announced is almost bewildering; and the secretaries have all they can do to approximately keep track of the happy festivities. The following list of marriages and engagements was received by wireless: A. E. Wells, R. H. Booth, Walter B. Clifford, H. C. Merriam, L. G. Christy, Stuart C. Coey, Charles LeBaron Casson, Dan Adams. —J. C. Kinnear was married Thursday, June 20, to Miss Bertha Harvey Clarke, of Peabody. They have gone to Goldfield, Nev., where Kinnear is to work. Guy Ruggles on his way east, through Salt Lake City, visited the Mormon Temple, and there on the visitors' book spied the names of "Mr. and Mrs. J. C. Kinnear, of Massachusetts."—On May 16, Michael J. Gibbons, Jr., wrote in part: "Have been enjoying all the hard work belonging to an unusually prosperous year. Only about twenty-eight more bachelor

days for me, and have no regrets on that score."—A. W. Talbot, '06, is reporter on the Providence *Journal*.—During Commencement week Robert Dean (VI.) was in town from Philadelphia.—C. J. Rich was on from New York at this time, and Knapp came up from Pittsburg.—Edmund S. Campbell (IV.) took his Master's degree in Architecture in June.—Colby Dill likewise received his in Industrial Chemistry.—R. T. C. Jackson received his Master's degree in Architecture in June. He has been troubled with a severe attack of malaria, and is now down in Maine regaining strength.—During the spring of '07 it was reported that W. H. Foster, who has been with the heavy artillery at Fort Warren, Mass., went to Kentucky to take the examination for an advanced appointment. He passed with very high standing, and then asked for fifteen days' leave of absence immediately after the examination. Several months have passed, and he has not appeared since.—Shirley P. Newton, who is with the Sherwin-Williams Paint Company, writes from Cleveland, Ohio: "Fred Moore, Cleveland, Ohio, was with '06 a couple of years ago. Haven't seen his name in the REVIEW. C. B. Morey, '05, of the Larkin Soap Company, Buffalo, N.Y., hasn't forgotten Company C. He is in a crack company of the 74th N. Y. N. G. They are going to the Jamestown 'Imposition' to 'drill for the ladies.'" Newton adds, "Don't forget to give us a report of the dinner."—Mark H. Place, who is with the Chicago, Milwaukee & St. Paul Railway, writes from Fallon, Mont: "Was made a resident engineer March 1, and have ten miles covered with teams and work. I can hardly leave to go to Boston in June."—R. B. Sarratea was heard from in May. Address, General Delivery, Clifton, Ariz.—One member writes, "I find that, while the four years as an undergraduate may be the 'happiest years of our lives,' the year following graduation may be a mighty close second."—Daniel Adams, married April 27 to Anna Rhodora Gibson, Wellesley Hills. Will reside in Methuen, Mass., after June 1.—Owedis M. Chuchian, with the Hudson Company of New York City; residence, 153 East 27th Street, New York City, N.Y.—Leavitt N. Bent left for Joplin, Mo., the first week in June, to take position as chemist in a dynamite works.—Charles F. Breitzke is in experimental work on

filtration, Bureau of Chief Engineer, Department Water Supply, Gas, and Electricity, City of New York. Since graduation his occupation has been as follows: June to October, 1906, temporary assistant engineer, New York Board of Water Supply; October to January, 1907, in charge of construction of Mt. Kisco reservoirs; January to April, with Hazen and Whipple, on statistical and experimental work on aëration of water; since the last part of April has been employed in experimental work on determining best method of filtering the present Croton supply, New York City.—George W. Burpee at present is resident engineer on construction of power house at East Bridgewater, and underground conduit system in Brockton, for the Edison Electric Illuminating Company of Brockton.—Louis L. Booth writes from Geneseo, N.Y.: "At present writing, am superintending the erection of some buildings. All my classmates seem to have had the sense to keep away from here."—Sidney T. Carr writes from Pittsburg, Pa.: "J. J. Cartagena, who was out here, has gone to his home in Porto Rico. The rest of the '06 crowd are still here."—Henry R. Carruth writes: "I am engaged. This may be information or ancient history, according to the person seeing it. The lady is Miss Letitia M. McManus, of Dorchester, Mass. The announcement appeared in the Boston papers late in October last."—Earl G. Christy writes: "Am coming East to find a partner. Girls are all married or going to be. Will be in Boston, July 10–24. This is first visit to the East in two years."—Robert Sidney Clark writes from 319 Howard Street, San Francisco, Cal.: "Am enjoying life as best I may, all by my 'wild lone,' and am incidentally lending my moral support to breaking the numerous strikes here. You call me a 'scab'? Well, perhaps, but then.—Edwin Frank writes: "C. S. Pierce, familiarly known as 'Chad,'—he of the C. S. Rice Benevolent Association—is stationed at Janesville, Wis., on the Chicago & Northwestern Railway, on second track work. The address is 302 Centre Street, Janesville, Wis."—George P. Guernsey, who has been assistant in the Civil Engineering Department at Tech, is now at Glendive, Mont., being junior Engineer, United States Reclamation Service, located on the "Lower Yellowstone Project."—Wallace R. Hall writes: "Yrizarry is on the

transmission line. Cartagena is coming here in a couple of months to install the electrical machinery."—C. E. Hovey writes: "There have been several of our classmates at the United States Naval Academy. Maxfield graduated, Kelly resigned, Clay died, Smith, W., will graduate in 1908."—H. S. Hubbell writes: "W. B. Clifford, '06, has left the Simonds Manufacturing Company, Fitchburg, Mass., and is now acting as assistant superintendent with the T. R. Almond Manufacturing Company, 83 Washington Street, Brooklyn, N.Y.—Robert Hursh writes: "Assistant to general manager and engineer of Empire Zinc Company in Republic of Mexico, in ore buying, mine examinations, and operation of Mexican mining properties of Empire Zinc Company of Denver and New York. Mexico for mine; suits me in every respect. Tommy Holmes at A. S. & R. Smelter, Aguascalientes, Al. Stephens at A. S. & R. Smelter, Valardena, Hank Mears at Copper Queen Mine, Bisbee, Arizona."—F. R. Ingalsbe has been instructor in geology at Lehigh University the past year, but has not yet decided to return on account of the small salary. After June 1, 1907, his mail address will be Ishpeming, Mich., care of Cleveland-Cliffs Iron Company.—A. H. Keleher writes from "Palisade Court," corner 139th Street and Broadway, New York City: "Intended being present at feed. Vacation comes June 1–15. Find it necessary to spend same in Washington, partly because of New England L. A. Convention. If you want more news of me, ask Coey. Make him tell 'watermelon story' at the dinner."—E. D. McCain writes from Winnipeg, Canada: "A stranger in a strange land. No classmate within 500 miles. Hope to return to God's country some day."—Richard V. McKay writes from care of Pennsylvania Steel Company, Lebanon, Pa.: "Am learning the steel business. Serving time in the various departments, getting lots of experience working in draughting room, handling gangs of 'Hunky' laborers, putting in 24, 30, 36 hour shifts, watching and doctoring our large blast furnace, which goes on the bum on an average of once in three weeks."—C. S. Peirce (I.), '06, is busy getting things in shape for contractors on some second track and yard work. He writes from Janesville, Wis., care of L. J. Putnam, assistant engineer, Chicago & Northwestern Railway:

"Can't send you any coin until pay-day, about June 3, as had a serious operation on head about four months ago. Am just over it, and at work again, so you can see that the spondulix aren't plentiful. Will send it near the first of June, so keep me on the roll."—Mark H. Place writes from Milton, Rock County, Wis., "Can find no classmate in this section of the State."—G. H. Ruggles writes from Great Falls, Mont., "I will be in Boston about July 1, on a month's vacation."—A. L. Stephens writes: "Tommy Holmes is in Aguascalientes, and is playing bear very fervently to a Mexican señorita. Watch developments."—William H. P. Wright writes from Gabriels, N.Y., "I have been very sick up here at the sanatorium since I was forced to leave old Tech in February, 1906; and am still in a critical condition."—Charles G. Loring writes, from care Perier et Cie., 5 Rue de Provence, Paris, France, "There are three of us here, Mann, Lebenbaum, and self, all IV., and all studying like hell; like hell we are."

IX. The following changes of address have been received since the April issue of the REVIEW:—

M. J. Ahern, Boston College, Boston, Mass.—C. L. Anson (XIII.), 127 Newbury Street, Boston, Mass.—J. I. Banash, Underwriter Laboratories, 382 Ohio Street, Chicago, Ill.—Ray Barber has returned from the West, and is going into his father's optical business. Both he and Mrs. Barber had malaria. Mrs. Barber is now in Adirondacks, convalescing.—Harold W. Beers is with the Southern Ferro Concrete Company, Atlanta, Ga.—Robert H. Booth (II.), Republic Iron and Steel Company, Moline, Ill., 702 5th Avenue.—Harry W. Brown (II.), draughtsman, Lockwood, Greene & Co., 93 Federal Street, Boston, Mass.—G. E. Burnap (IV.), 116 Harvard Street, Newtonville, Mass.—George W. Burpee (I.), engineer with Westinghouse, Church, Kerr & Co., 10 Bridge Street, New York, N.Y.—Robert S. Clark (XIII.), 319 Howard Street, San Francisco, Cal.—Walter B. Clifford (II.), assistant superintendent T. R. Almond Manufacturing Company, Brooklyn, N.Y.—R. E. Cranston, 815 Banigan Building, Providence, R.I.—William J. Deavitt (III.), mining engineer, Munro Iron Mining Company,

Iron River, Mich.—Theodore A. Dissel (II.) is doing telephone construction work for the Consolidated Car Heating Company, and is located at 197 Liberty Street, Newburg, N.Y.—Edward M. Eliot, East 950 Nora Avenue, Spokane, Wash.—Edward B. Evans, formerly of Malden, is engaged in structural work in Johnson City, Tenn.—G. R. Guernsey, Glendive, Mont.—Wallace R. Hall (I.) is in Porto Rico with the San Juan Light and Transit Company, San Juan, Porto Rico.—Carroll A. Farwell, engineering aid, care U.S. R. S., Buford, N.D.—Henry B. Hallowell, Boston & Montana Copper Company, Great Falls, Mont.—Alfred R. Heckman, Grasselli Chemical Company, 347 Marshall Street, Elizabeth, N.J.—George F. Hobson, 22 Pearson Street, Long Island City, N.Y., with Albert F. Bancroft (III.), '07.—H. O. C. Isenberg (II.), Proposition Department, Stone & Webster, 84 State Street, Boston, Mass. Residence, 31 Newbury Street, Boston.—R. D. Kelley, office E. M. W., Vandalia Station, Logansport, Ind.—James William Kidder (VI.), Holyoke, Mass.—Clarence E. Lasher (VI.), North Adams Gas Company, North Adams, Mass.—E. S. Manson (VI.), 1 Durham Street, Boston, Mass.—Joseph N. McKernan, draughtsman and transitman with New York, New Haven & Hartford Railroad, Room 444, South Station, Boston, Mass.—Miss Eleanor M.Manning, draughtsman, whose specialty is interior decoration, is at present at 287 South Street, Morristown, N.J., in charge of some alterations that are being made on a house there.—H. Mears went to Boisé, Ida., on a report, and is now in Portland, Ore.—Harry C. Merriam (V.) is with the A. V. Plant, Leadville, Col.—L. F. Mesmer, 158 North Main Street, Los Angeles, Cal.—A. Neale, care Spencer Kellogg Company, Buffalo, N.Y.—Sherley P. Newton (V.), assistant chemist, Sherwin-Williams Paint Company, Cleveland, Ohio.—Miss J. B. Patten (VII.), Carver Hill Farm, South Natick, Mass.—Henry R. Patterson (II.), in charge of mechanical testing department, Trenton Iron Company, Trenton, N.J.—J. H. Polhemus, Carthage, Mo.—Edward M. Read, Jr., 53 Irving Place, New York, N.Y.—Robert Ware Rose (XIII.), real estate dealer, 3 Orchard Circle, Clifton, Mass.—Charles Dana Richardson (VI.), electrical engineer with Underwriters' Laboratories (Boston office, Wire

Inspection Bureau).—J. A. Root (III.), Inde Gold Mining Company, Inde, Mex.—Arthur W. Talbot (VI.), reporter and special Sunday Auto writer, Providence Journal Company, Providence, R.I., to which place he moved in November, '06.—A. S. Thomas (II.), 111 Stevens Street, Lowell, Mass.—Stanley M. Udale, 11 Birch Grove, Ealing Common, London, Eng.—Varian, Morene, Ariz.—C. E. Warren, 109 South Spring Avenue, La Grange, Ill.—N. A. White, 310 North 6th Street, Camden, N.J.—Malcolm G. Wight (I.), transitman with W. W. Wight, C.E., Wellesley Hills, Mass.—Dana M. Wood (I.), hydrographic aid, United States Geological Survey, 6 Beacon Street, Boston, Mass.—Harold E. Young (VI.), care district manager, Southern Bell Telephone and Telegraph Company, Augusta, Ga.—The roll of the class is not yet complete. There is quite a list of lost, strayed, and stolen members who have not yet been located. Please help the secretaries find them.

X. The following members have been located by the secretaries since the last issue of the REVIEW:—

Morse B. Ashmore, electrical engineering department, Twin City Rapid Transit Company, Minneapolis, Minn.—J. H. Cady, Peabody & Stearns, 53 State Street, Boston, Mass.—H. C. Chapin (XI.), Columa, Mex.—L. J. T. Decary, architectural draughtsman, 382 Centre Street, Montreal, P.Q.—S. E. Gideon, M. I. T., Boston, Mass.—J. T. Gilmer, 210 West 72d Street, New York City, N.Y.—Robert B. Gregson, 160 Andover Street, Lowell, Mass.—J. Francis Haley, North American Lead Company, miners and smelters of lead, nickel, and cobalt; mines and works, Fredericton, Mo.—Jerome G. Harrison, 416 Stimson Building, Los Angeles, Cal.—E. Leander Higgins, 120 Exchange Street, Portland, Me.—Ralph Hayden (III.), West Anaconda Copper Company, Box 362, Anaconda, Mont.—Robert Howe (VI.), assistant in electrical department and distribution, Boston Consolidated Gas Company, Allston, Mass.—Miss Mary P. Hunnewell, Wellesley, Mass.—E. R. Hyde, Fore River Ship and Engine Company, Fore River, Mass.—Lovejoy (II.), New Haven, Conn.—Robert F. Luce, aid, Coast and Geodetic Survey, Washington, D.C. May 27 reported on United

States steamship "Bache," surveying on coast of Porto Rico.—J. S. McGregor, Livingston Hall, Colorado University, assistant under Professor Wilson.—C. A. Merriam (II.), 134 St. Botolph Street, Boston, Mass.—W. N. Messenger, 148 West Foster Street, Melrose, Mass.—Howard Leslie Obear (VI.), 107 Warren Avenue, Boston, Mass. In automobile business in Park Square, Boston.—Ralph O. Reed, 517 Franklin Street, Melrose Highlands, Mass. With Malden & Melrose Gaslight Company and Malden Electric Company.—Arthur T. Remick, 323 West 77th Street, New York, N.Y.—Ralph C. Sprague (XI.), with father in grain business, South Framingham, Mass.—Ralph G. Stebbins, 60 Congress Street, Boston, Mass.—Mrs. Marion Hibbard Thanisch, 151 Park Street, West Roxbury, Mass.—R. C. Thayer, Goldfield, Nev.—Harry H. West, Room 23, Journal Building, 268 Washington Street, Boston, Mass., contracting work, especially glazed tile, arches, and domes.—Malcolm G. Wight, Wellesley Hills, Mass.—A. M. Winslow, 216 Lincoln Street, Worcester, Mass.—Dana M. Wood, 6 Beacon Street, Boston, Mass.

XI. *On the Part of the Secretaries.*—It is up to the members of our class to make a point of hunting up the house or officers of any Technology Club they are near or pass, in order that they may know where is the Technology rendezvous. This is the proper thing to do, whether or not they expect to join the club. For members inter-club membership cards are approved by almost all, and help in obtaining the guest friendship privileges when one is travelling. Percy E. Tillson, 3411 Walnut Street, Philadelphia, writes on June 16 as follows:—

I was very glad to get your letter and hear of the good time at the reunion, even if I could not get up there myself. Terrell was with us Thursday night, and we all enjoyed his visit and his news of the "'Stute." If you hear of any more '06 men coming through Philly, I hope you will tell them to look us up, and also let us know that they are coming. We appreciated your thoughtfulness in letting us know that Terrell was coming. We have been very fortunate in seeing fellows on their way through town, and we hope that it will keep up. Do you know of any '07 men who are coming down here? As you suggested, it would not be a bad stunt for us to look them up. Robert Booth (II.), '06, who was secretary of the Tech Club of

Philadelphia, has gone to Moline, Ill., with the Republic Iron and Steel Company. I am afraid that is all the news that Philadelphia can send to you at present. Dean, Powell, and Taylor all want to be remembered to you.

One member of our class suggested that '06 have a special representative in each alumni association in the country to look out for our men who may pass by. In various parts of the country the fellows are coming together. Small colonies are just as helpful as large ones.

In a recent issue of THE TECHNOLOGY REVIEW an article entitled "Recruits" was published. The secretaries have noticed several instances of activity among our classmates in helping to bring into touch with the Institute such young people as are seeking the kind of education which the Institute aims to give. Let us see more of this good work.

The following clipping recently taken from the Boston *Evening Transcript* on the salaries of some of the Lawrence Scientific School graduates will be of interest in so far as it is possible to make a comparison of the figures with the returns shown on our salary chart:

HARVARD UNIVERSITY

What the Graduates of the Lawrence Scientific School are Doing

Professor H. L. Smith, '83, chairman of the division of mining and metallurgy, has been in correspondence with the graduates of the Lawrence Scientific School in mining and metallurgy with regard to the work in which they have been engaged and their earnings since graduation. Letters were sent to every man who had been at work a year.

From 1897, when the first man was graduated, to 1905, 38 men received the degree of S.B. in mining and metallurgy. In addition, five graduates of the college completed the work of the mining program, and are rated as graduates of the division. Deducting five men who have never gone into mining work, as well as three members of the class of 1905 who were engaged in graduate study during the year 1905–06, leaves 35 men who are employed in mining and metallurgy. Of these, information has already been received from 25. This information may be summarized in the following table: engaged in mining, 23; engaged in metallurgy, 1; engaged in teaching metallurgy, 1; superintendents of mines, 11. Average earnings first year after graduation, $878; average earnings of men who

have been out two years, $1,456; average earnings of men who have been out three years, $1,900; average present age, 28 years; average present earnings per annum, $2,387.

XII. *Letters.*—Robert Sidney Clark writes as follows:—

319 Howard Street,
San Francisco, Cal., May 15, 1907.

Dear Classmate,—As the year has rolled around, and it is getting to be nearly time for the first reunion of the greatest class that Tech ever let loose on an unprotected and unsuspecting world, I think it may be about time that I paused in my mad career, and gave an account of my wanderings. As some of the members of the class probably know, I entered the employ of the Sullivan Machinery Company in the latter part of last June, and with said company I have been ever since. During the first six months I was at the Claremont (N.H.) factory of the concern, at the end of which time I was detailed as a committee of one to uphold the dignity of '06, and incidentally help represent the company on the Pacific Coast.

I had a most delightful trip out here, taking about eight days on the road, stopping off at various points to visit friends. Spent a couple of days at Grand Rapids, Mich., where I called on Ed, otherwise known to his intimates as "Gloomy," Chandler, and he and I went over the old days, our thesis, and sundry subjects together. Friend Gloomy seemed to be in somewhat of a more cheerful mood than of old, and, needless to say, my visit with him was very pleasant and by all means too short. As it was, however, my company gave me a call for overstaying my furlough when I reached Chicago, whereupon I had to go into a lengthy explanation of my whereabouts, all of which ended amicably for all concerned.

After having done a rapid hike across country, and having been in the city of the Golden Gate for some time, eating mud in large cartloads from this "beautiful" city's "beautiful" streets, walking in the same mud up to my knees, more or less, riding on cars run by one of the crumbiest companies on the face of the green earth, I at last got out on the road, and began to enjoy life. Had a most delightful trip amongst the gold mines of Placer and Nevada Counties, where I had my first experience as a miner, running a rock drill in the bottom of a wet shaft, enjoying a veritable rainstorm underground.

Since then I have spent my time roaming through various parts of the State, my last trip being down through the San Joaquin Valley and up

through Mother Lode country. That was the finest trip I have had yet, as the country was at its best, it being not yet time for the hot days, when the thermometer stands at umpty degrees in the shade for weeks at a time. Thanks be that I timed my trip well.

I have hardly seen a familiar face since I came West. Ran across Harry Vonder Horst rather unexpectedly one day some months ago, and have seen him several times since, but aside from him I have not seen a soul I ever knew at the old school.

It makes me sad to think of all the good times the fellows will have at the reunion, but perhaps I may get with one or two others on that date, and try to make up for inability to be with the bunch. You may be sure that my thoughts will be with the boys on the evening of the Pop Concert, for I still cherish fond memories of the time we had on the same occasion last year.

I have been receiving the REVIEW regularly, and certainly hope I shall never have to be without it, as it is about the only means I have of keeping any tabs on the rest of the good old gang.

When the boys are gathered around the festive board, and services in the "chapel" have been duly and properly conducted, just let them pause a moment and give one passing thought to those who are forced to cut the exam. Be sure they would gladly be present, and conduct themselves as true Knights of the Hammer and Tongs and "Sons of the Engine Deck," but they are forced by grim circumstances to be elsewhere, and can only be present in the spirit. But, if they are there in the proper spirit, the spirit of Tech and the class of 1906, they will be doing their duty, it seems.

Here's to the banner Class of the banner School,
The Class that sure did tricks,
That in work or pleasure's bound to rule,—
Here's now to Nineteen-Six.

IN MEMORIAM

THOMAS LEO GILLIS.

MERRICK EUGENE VINTON, Jr., III.

NECROLOGY

GUY WARNER EASTMAN, '04

Guy Warner Eastman, '04, was instantly killed on May 17, 1907, by being struck by a train at the Back Bay Station in Boston. The funeral services were held at his home in Allston, Professors Goodwin, Wendell, and Noyes, and Mr. L. M. Emerson,' 04, acting as pall-bearers. He was interred at Norwich, Conn. His sad death was an inexpressible shock and a cause of deepest sorrow to his associates and students at the Institute and to his classmates.

He was the son of Major Frank F. Eastman, U.S.A., and of Susan Colby Eastman, and was born at Lawrence, Mass., on Oct. 7, 1881. He was educated in the schools of that city, and in those of Vancouver, Wash. He passed the examinations for admission to the Institute in 1899. Instead of entering immediately, he spent one year in the Philippine Islands, at Manila, where he was employed in the Quartermaster's Department. He entered the Institute in October, 1900, where he pursued the Course in Physics. He was prominent in the affairs of his class, being vice-president of it and a member of the editorial boards of the *Tech* and *Technique*. Shortly after his graduation in June, 1904, he accepted a position as assistant physicist in the Bureau of Standards at Washington. In December of that year he married Miss Charlotte Fuller, of Norwich, Conn. In October, 1905, he resigned his position at the Bureau, and returned to the Institute with the appointment of Research Associate in Physical Chemistry. During the year following he completed an investigation on the Conductivity of Aqueous Solutions at High Temperatures, which was assisted by the Carnegie Institution, and which is now being published by it. In October, 1906, he was appointed Instructor in Physics and also Austin Fellow of the Institute, under the arrangement that he devote one-half of his time to the instruction in general physics and the remainder to advanced work for the degree of

Doctor of Philosophy; and at the time of his death he had made good progress upon the thesis required for that degree.

He was a man of such clearness of mind, human sympathy, and interest in teaching that he made a most efficient teacher. Moreover, his devotion to science and aptitude for research work justified the prediction that he would become a successful investigator. His personality was, too, an inspiration to all those with whom he was associated. By his death the Institute therefore loses one of the most promising of the younger members of its staff.

A. A. Noyes, '86.

BOOK REVIEWS

'THE TECHNOLOGY ARCHITECTURAL RECORD," VOLUME I., NUMBER I

This latest publication of the Institute of Technology is to be issued quarterly by the M.I.T. Architectural Society, and is "devoted to the study of architecture and to the welfare of the Department of Architecture of the Massachusetts Institute of Technology." As stated in the announcement, this first number "includes the information given formerly in the circular of the Department of Architecture." In addition to this it devotes about sixteen pages to an account of the growth and work of the society, to illustrations of various designs which have received awards, and to data concerning the various competitions for the Rotch scholarship and other prizes. These, with a batch of alumni notes, make up a number interesting to all Institute men as well as to men engaged in the profession of architecture; and the typographical work is so admirable that the quarto pamphlet, bound in a beautiful shade of buff, is a delight to the eye and a credit to the management of the society as well as to the printer. The managing editor is Professor H. W. Gardner, and the Publication Committee is made up of Messrs. W. Soule, R. T. C. Jackson, and W. F. Dolke, Jr.

The REVIEW welcomes most cordially this addition to the publications of the Institute, and feels confident that the *Record* will be of great benefit, not only to the Architectural Department, but to the Institute as a whole.

"TECHNIQUE, 1908"

Technique, the scramble for the first copies of which is a recognized feature of Junior Week, is the usual handsome annual of about four hundred pages, with many illustrations, some of them crude, but most of them of a high order of merit.

This year's issue is dedicated to Mr. Frank H. Rand, the popular

Bursar of the Institute, and the frontispiece is a very excellent portrait of him. As usual, the fraternity emblems and lists of members occupy a prominent place, and these, together with the organization of the various Institute social activities and the athletic data, form a permanent record of considerable value.

The four class histories are amusing, the "Grinds" deal discreetly with the foibles of certain members of the instructing staff and more bluntly with the eccentricities of undergraduates, and in "Statistics" fact and fiction are, as usual, cleverly mingled.

While *Technique* is always of very high excellence as compared with other college annuals, this year's issue seems to show evidence of some haste in compilation.

The Technology Review

VOL. IX. OCTOBER, 1907 No. 4

A PLEA FOR THE IMAGINATIVE ELEMENT IN TECHNICAL EDUCATION

There is strong reason for the belief held, with few exceptions, by our ablest university presidents that an institute of technology should be essentially a graduate school, in the same rank with schools of law and of medicine. For many years the best law schools have recruited their students from the graduates of colleges, and some of the leading medical schools have adopted the same principle. It has been felt that no amount of purely technical knowledge can replace the advantages of a broader culture and the better understanding of the affairs of the world which its possession implies. We need not pause to discuss here the relative educational value of science and the humanities, though this subject is touched upon in a later paragraph. Such weighing of one subject against another is not now relevant: we are concerned merely with the fact that students who have spent time enough to acquire a large amount of information of broad range are certain to have the advantage of those who have spent less time in acquiring less information of narrow range.

It is probable that the average member of a technological school is in more danger of a narrow outlook than any other class of students. In a large percentage of cases he has

rejoiced from boyhood in a mechanical turn of mind, which has concentrated his attention on engines and machinery and the splendid achievements of modern engineering. Happy is the boy whose career is thus plainly foreshadowed. For him life is sure to be worth living, and the dangers of idleness may be ignored. But this very interest, in direct proportion to its intensity, is almost certain to lead to a neglect of other opportunities. The absorbing beauties of machine construction and design so completely occupy the boy's mind that they hinder a view of the greater world. He cannot be expected to perceive that a knowledge of the details of his chosen profession should not suffice to satisfy his ambition. He does not yet know that to become a great engineer he should cultivate not merely his acquaintance with the details of construction, but in no less degree his breadth of view and the highest powers of his imagination.

The greatest advances, whether in engineering, in pure science, in art, or in any other field, arise as mental pictures, at first uncertain as to details, but subsequently clear and distinct, requiring only an application of text-book methods to give them tangible form. It is in the conception of the picture, and not simply in the execution of the project it embodies, that the truly great engineer must excel. The mere dreamer never succeeds in bringing the confused and nebulous image to a sharp and definite focus. Lacking a substantial basis of knowledge, or otherwise failing to possess those subtle qualities which the realization of a splendid dream implies, he never gives walls or foundations to his castles in Spain. But practical ability to execute the design can never replace the design itself. The picture must be conceived and made visible to others before the work of construction can begin. Once the design has been transferred to paper and its fundamental principles made clear,

an army of artisans, possessed of the skill required for its execution, can easily be found. It should be the purpose of the Institute to contribute to the world the largest possible proportion of men capable of conceiving great projects and the smallest possible proportion of men whose ambition can be completely satisfied by the work of executing them; and the means adopted to accomplish this end should be such as to improve the work of every graduate, including those who may be unfitted by nature for the greater tasks to which I have referred.

Perhaps it should be remarked at this point that what is ordinarily called invention, as applying particularly to machinery, is not alone considered here. A great engineer is not necessarily a great inventor, in this limited sense of the word. He may depend upon others to furnish the materials, whether perfected machinery or the simple brick or stone, copper or glass, with which he builds. It is for him to group them in such a way as to accomplish an advance, by securing greater economy in the industrial arts, by raising an architectural structure that shall benefit every occupant or casual observer, by facilitating transportation to such a degree as to revolutionize the conditions of daily life.

It would thus seem to be evident that a technological school can by no means afford to underestimate the need of broadening the view and cultivating the imagination of its students. What agencies, we may then ask, would best contribute to this end? It goes without saying that technical education must be the principal work of the school. Is it possible, in view of the heavy demands brought about by the rapid development of engineering, to give all necessary instruction in technical subjects, and also to extend the student's outlook upon the world and to develop his imaginative power?

I believe that three means contributing toward the accomplishment of this result should be considered:—

1. As a probable development of the future, the requirement of at least two years of general college work for entrance.

2. As a partial alternative under existing conditions, the allotment of as much time as can be spared to general studies in the Institute's curriculum, and the creation of new opportunities, outside of the regular work, for developing the social and cultural sides of the student.

3. As essential needs under all circumstances:

(*a*) Insistence upon the paramount importance of fundamental principles, as distinguished from specific facts and technical details.

(*b*) The fullest possible recognition and use of the educational value of science, both in its cultural aspects and in the means it affords of developing the reasoning powers and the constructive imagination.

Let us consider these points in the above order:—

1. It may be taken for granted that the progress of engineering will cause more and more difficulty in providing suitable technical instruction in a four years' course. Although I believe this difficulty can be partly met by giving less time to the mere acquirement of knowledge and more to practice in the solution of new problems, it is evidently no simple matter to reconstruct the curriculum on this basis.

The development of the turbine engine, for example, must be recognized in the course of instruction. Its adequate treatment, however, demands time, which can be had only by eliminating other instruction. So with the theory of alternating current machinery, the phenomena of radioactivity, and many other subjects of recent development. All must find place in the curriculum, which accordingly becomes more and more difficult and condensed. The increasing entrance requirements tend to shift the more elemen-

tary mathematical courses from the Institute to the preparatory school, and the same may be said of other subjects. The inevitable tendency is, therefore, for the purely technical courses to crowd out other work. At Sibley College this process has eliminated even modern languages from the curriculum. At the Institute political economy, English literature and composition, history, modern languages, and business law are retained, and successful efforts have been made to provide for much general reading through the adoption of requirements for summer work.

It may be expected, then, that the future will see the best of the technological schools requiring part, at least, of an ordinary college course for entrance. Such a result is earnestly to be desired, in view of the better and broader education rendered possible by such means. The technological schools may then devote themselves to professional studies, though pure science should always play a very important part in their work, and every effort should be made to realize and develop the more truly educational possibilities of the instruction. The rapid increase in the number of college graduates at the Institute, and the establishment of a three years' course for them, leading to an M.S. degree, are significant signs of the times.

2. We are told, however, that the average student is not in a position to spend six or eight years, after leaving the preparatory school, in obtaining an education. Without attempting to question the truth of this assertion, the analogous case of the medical schools seems to indicate that room might now be found for one or two technological schools requiring two years of college work for entrance. Nevertheless, I do not favor the immediate adoption of such a policy by the Institute. Further experience will show whether so radical a departure is essential. For the present

we may consider the ordinary course limited to four years, and inquire whether it is possible to improve it in any considerable degree.

It may be hoped that the successful efforts made by the Faculty to retain a considerable number of general studies will be followed by an attempt to extend the scope of this work. The Institute graduate is in no less need than the Harvard graduate of a knowledge of history, literature, language, and art. The fact that the one may engage in engineering, while the other devotes himself to some other business, should draw no line of distinction between them. The engineer should know the accomplishments, the thoughts, and the ways of the world no less thoroughly than they are known by the broker, the banker, or the dealer in real estate. His work, as we have said, is not confined to the application of certain formulæ to the solution of engineering problems. It occupies, or should occupy, a broader field, in which an understanding of the impelling motives and the probable actions, under given conditions, of other men is one of the first essentials of success.

The time will inevitably come when the mass of engineering knowledge which must be taught in some form in a four years' course will be double or treble what it is to-day. What can be done then? Will it not be possible, through the elimination of the less important details and greater concentration of attention on fundamental principles, to overcome the difficulty? If so, it seems reasonable to suppose that something of the sort could be accomplished now, leaving time for the inclusion of more general studies in the curriculum and for more practice in the solution of problems new to the student, by which his creative and reasoning faculties would be developed.

3. The saving of time should not be the only result of

such reconstruction. There is reason to believe that the average student, at the present day, may often fail "to see the wood for the trees." His mind is not able to distinguish with sufficient clearness between fact and principle. A fact may be capable of attractive and forcible illustration, easily appealing to the mind. It may perhaps afford a most striking example of a general law, but the uninviting aspect of the latter, when reduced to a formula, may repel rather than attract. The law is soon forgotten, while the illustration of its application to a particular case is kept in mind.

But how, it may be asked, are we to escape the difficulty into which we have fallen? It is held, on the one hand, that double advantage may result from even greater attention than is now given to fundamental principles. It is admitted, on the other, that such principles must, in the nature of things, be taught and rendered attractive through just such illustrations as are now so effectively employed. Standing between the horns of this dilemma, we can only appeal for assistance to those who have demonstrated their ability in building up the Institute courses. In asking of them whether the last word has been said on this subject, we may confidently expect a negative reply, for the frequent revision to which the courses are subjected demonstrates a determination to keep abreast of the times. It may be hoped that this reference to the question will not be taken as a trivial attempt at criticism, since in their review of the year's work the members of the Faculty would probably have in mind the query here proposed.

It is undoubtedly true that no amount of general study and no method of teaching science can replace the advantages of personal experience. On the other hand, it must be admitted that, by adopting the best means to acquaint the student with the broader aspects of science, results may be

accomplished which might otherwise be long delayed. The catalogue of the Institute rightly states, in opening its discussion of the courses of instruction, that the "fundamental elements in the curriculum of the school are mathematics, chemistry, and physics." It adds, further, "Instruction in technical methods is subordinated to the question of principles, and these principles are studied with the predominant purpose of exercising the powers and training the faculties." It would be difficult to prepare a more admirable statement of the purposes of the school, and this may seem to render any recommendations in this direction superfluous. As in the case of general studies, however, where these remarks may do no more than second the efforts already made by the Faculty, I may be permitted to emphasize the importance of extending the application of a principle already recognized and of adopting any practicable means of widening the outlook of the student.

In remarking upon the desirability of cultivating the scientific imagination and of developing that breadth of view which is most effectively acquired through reflection and experience, I have had in mind the fact that the most fertile and inspiring of all scientific theories has never, it would appear, received adequate recognition in the curriculum of educational institutions. I refer to the theory of evolution which, when rightly appreciated in its broadest scope, is perhaps better competent to awaken the imaginative powers and to develop an understanding of the greatest aims of science than any other single conception. Many institutions, the Institute among them, give a limited number of undergraduates courses involving the study of evolution in one or more of its innumerable phases. The opportunity remains, however, to present a general course of lectures dealing with evolution as applied to the various branches of science, and

to require that it be attended by all students. Such a course, if accompanied by collateral reading and illustrated by a small museum of carefully selected objects, would do more, in my opinion, to accomplish the purpose in mind than any other single agency.

The natural tendency of the student, from which few escape, is to regard science as partitioned off into compartments, each more or less sufficient unto itself. Every effort should be made to break down this tendency, in order that it may become clear that science should be considered as a whole, particularly if its fullest educational value is to be realized. The theory of evolution, on account of its endless range and its importance in almost every branch of science, may serve as the best means of illustrating the arbitrary nature of the boundary lines that have been drawn. Even in the conception of evolution itself there is a natural but undesirable inclination to distinguish, for example, between organic and inorganic evolution, and to confine general courses of lectures to one or the other branch. What the student needs, if this view of the subject be correct, is some such picture of the general operation of the evolutional principle as Spencer has outlined, but so modified as to deal with the advances of recent years, and illustrated by the best and most striking examples that can be brought together.

Such a course of lectures should be arranged on a chronological basis, and would therefore open with a popular account of recent investigations on the origin and development of the heavenly bodies. The remarkable results of recent astronomical photography afford the richest of illustrative material for such lectures as these. Nothing could be more suggestive than the magnificent whirlpools of the great spiral nebulæ, which are now considered as the source from which

solar and stellar systems are developed. After seeing for himself the forms of these star sources, the student would listen with interest to an account of Laplace's nebular hypothesis and the more recent views which promise to supersede it. Then would follow a description of the sun as a typical star, and a sketch of stellar growth and development based upon modern inquiries. Here the intimate relationship between this field of astronomical research and the laboratory studies of the physicist and chemist would become apparent. For it is possible to solve physical and chemical problems through observations of the stars, as well as to solve solar and stellar problems through experiments in the laboratory. It would be easy, therefore, to introduce at this point such a sketch of modern physical and chemical conceptions as would bring home to the student the fundamental character of these branches of science, their relationship to other branches, and their remarkable development in recent years.

The transition to the next phase of the evolutional subject would be so natural as to be imperceptible. The formation and development of the earth and of its surface phenomena, which it is the function of the geophysicist and the geologist to study, involve another application of physical and chemical principles. At the present time the processes by which the rocks of the earth's crust were formed are being imitated in the laboratory, just as solar and stellar conditions are being reproduced, in minor degree, by laboratory experiments designed for the interpretation of astronomical observations. The picture of geological phenomena would be no less striking. What better mode of developing the scientific imagination could be found than that afforded by the conception of the early history of the earth? The rise and fall of mountains and continents; the changing area of the sea and the story of sedimentary deposits revealed in the stratified rocks;

the growth of glaciers and the part they have played in former ages; the changes of climate; and, finally, the mysterious origin and development of plant and animal life, as first illustrated in the fossils,—such a picture as this, if viewed as a part of the greater picture which represents evolution as a whole, should stimulate the student to further inquiries.

Having advanced so far, he would eagerly await the account of the origin of species which can be given to such great advantage in the light of recent research. On the one hand there would be the evidence afforded by the countless specimens preserved in the rocks from former times, best typified perhaps in the case of the horse, whose many-toed ancestors can now be seen in an almost unbroken series, thanks to the energy and skill of recent investigators. On the other hand, even more attractive through the promise they hold out of future advances, the laboratory studies of experimental evolution, now pursued by both botanists and zoölogists, would receive consideration. The splendid conceptions of Darwin and their brilliant exposition by Huxley; the clash of rival hypotheses which has since followed; the part played by natural selection, on the one hand, and by mutation, on the other,—these and many other aspects of evolution, from the botanical and zoölogical standpoint, are interesting in their popular appeal and of the highest value in developing breadth of view. In all of these lectures the personal side should not be forgotten. What better stimulus could be offered the student than that arising from an acquaintance with Darwin, in the quiet surroundings of his home, removed from the centres of intellectual activity, hampered by constant illness, and yet pursuing long and patiently those simple yet remarkable researches which formed the basis of "The Origin of Species"? And what a splendid contrast is afforded by the striking successes of

Huxley, won in the midst of the turmoil of London, under the constant pressure of innumerable public duties! Here is an illustration of the most convincing kind that a scientific man is not of necessity a recluse, and of the more important fact that his work touches upon the concerns of the every-day world.

I might go on to develop, in greater detail and in clearer outline, my notion of the character which such a course of lectures should assume. Obviously, its limit need not be placed at the boundaries of organic evolution. It is much for the student to form a mental picture of the unity of science and of the orderly progress which culminates in the development of man. But, having pursued to this point the evolutional idea, he might wish to follow it further. The origin and growth of society, the course of history, the crude beginnings and the subsequent refinements of language,—in short, the source and progress of every form of material and intellectual activity are never to be rightly perceived unless in the clear light which the theory of evolution radiates.

I believe that this single example of the many agencies that might lead to the expansion of the student's intellectual horizon is one worthy of adoption. If science is to be regarded as not inferior to the humanities in its educational possibilities, it is because it deals with the largest and most fruitful conceptions, of which evolution is perhaps the greatest. While I am not of those who believe that science alone is competent to supply all of the student's needs or to take the place of the humanities in a well-rounded education, I would nevertheless maintain that, when rightly taught, it may do far more than merely to instruct the student as to the mechanism and the detailed mode of operation of the processes of nature.

It is unnecessary to remark on the uselessness or even

danger of encouraging the growth of the imaginative power unless the power of reason and the capacity to carry projects into practical effect are developed in equal proportion. There is no occasion to fear that the practical side will suffer, for it is, and must always remain, the most conspicuous part of the Institute's work. Nor is there any chance that the imagination in such surroundings will outgrow reasonable bounds. It is nevertheless well to remember that no amount of imagination can replace a lack of common sense. Moreover, the necessity of discriminating between projects that are likely to work out well in practice and those that are merely ingenious, while devoid of genuine merit, must always be borne upon the student's attention. Sound training and severe practical experience must furnish the required criteria.

I have devoted so much attention to this plea for the needs of the undeveloped imaginative faculty that I may be suspected of underestimating the predominant importance of the Institute's technical work. Far from believing, however, that the school should deal with pure science to the detriment of applied science or with the humanities in such a manner as to stand in the way of the effective training of the engineer, I would support a movement which might extend still further the scope and the importance of the technical departments. The rapid development and brilliant success of the Research Laboratory of Physical Chemistry are well known. I believe not only in the establishment of such a laboratory in connection with the department of physics, but also in those departments which are more directly concerned with industrial progress. The recent suggestion of a laboratory of industrial chemistry, in which investigations bearing upon the needs so constantly encountered in the application of chemistry to the arts could be conducted, should receive careful consideration. The marked success already achieved

by the Sanitary Research Laboratory and Sewage Experiment Station illustrates the possibilities of such a case. In engineering as well there is room for similar developments. It would seem that the plans already projected for graduate work in engineering should prove of great importance in the future development of the Institute.

It is pleasant to picture the possibilities that seem to lie so near at hand. Removed to another site, with a group of buildings expressive of the broadened scope of the new Institute and so attractive architecturally as to impress the student in his daily round, the school would be far better able than at present to compete with its powerful rivals. The provision, wherever feasible, of a separate building for each department, in which the fundamental purposes of the department might find full expression; the emphasis placed on the facilities afforded for the broadest possible education and the greatly increased opportunities for graduate and research work; the maintenance of the closest relations with manufacturing and industrial interests; the correlation, so far as possible, of all the researches carried on in the Institute, by instructors and students, with reference to their bearing upon large investigations of general importance; the formation of small but carefully stocked synoptic museums illustrating, on the one hand, the work of the various departments and, on the other, a course of lectures on evolution such as has been outlined; and, finally, the improvement of the student's daily life and associations by such agencies as will be afforded by the Walker Memorial Building,—by these means, and by others of like character, the Institute should be enabled to maintain its high reputation and to develop in such a manner as to satisfy the best ambitions of the alumni.

The suggestions offered in this paper may be summarized as follows:—

1. The need of greater breadth of view on the part of technical school graduates is likely to lead, in the best institutions, to the requirement of at least two years of general college work for entrance.

2. At present, on the basis of the existing entrance requirements and a four years' course, the policy of providing for more general studies and of developing the student on the social and cultural sides should be continued and extended.

3. The efforts which are being made by various members of the Faculty to lay special stress on the importance of fundamental principles should receive hearty encouragement.

4. The fullest possible advantage should be taken of the educational value of science. A course of lectures on evolution is recommended as one of the most promising means of broadening the student's conception of science and of stimulating his imagination.

GEORGE E. HALE, '90.

GEORGE WIGGLESWORTH

TREASURER OF THE INSTITUTE FROM MARCH, 1891, TO OCTOBER, 1907

The Institute of Technology has been especially fortunate in the men who have been willing to serve her in the difficult and highly important office of Treasurer. In her forty-two years of existence she has had only five such officers, and they have all been notable men,—Charles H. Dalton, William Endicott, John Cummings, William Lewis Tappan, Jr., and George Wigglesworth.

Each of them possessed some special personal quality or connection that made him peculiarly valuable to the upbuilding of the Institute; and all have been alike in their extraordinarily unselfish devotion to the Institute and to the problems of its financial maintenance. To make comparisons among them would be as difficult as it would be invidious; but it is no disparagement to his predecessors to say that in devotion, in conscientious study of the needs of the Institute, in zealous care for its property, and in personal generosity, no treasurer has surpassed Mr. Wigglesworth, whose resignation has just taken effect.

Upon the withdrawal of Mr. Tappan, Mr. Wigglesworth in March, 1891, was chosen to succeed him, was elected in the same month a member of the Corporation, and has served continuously as Trustee, as Treasurer, and *ex-officio* as a member of the Executive Committee, during more than sixteen years. He is a member of a distinguished family of Boston merchants, is a Harvard graduate of the class of '74, and all his business life has been honorably conspicuous as a trustee or director of many important estates and enter-

prises. He brought, therefore, to the office of Treasurer an established reputation in financial matters, long experience in the handling of trust funds, and the absolute confidence of the entire community.

In the years during which he has held office the property of the Institute has trebled in value, the number of students has increased very materially, and the problems with which an institution of applied science has to concern itself have grown greatly in complexity. To financial questions Mr. Wigglesworth has given all the strength of his sound judgment and wide knowledge of securities, and he has obtained, with the advice of the Committee on Finance, every cent of income for the college that it has been possible to secure. To the solution of the various other problems, moreover, with which, as a member of the Executive Committee, Mr. Wigglesworth has been confronted, he has given himself with unflagging zeal, conscientiousness, and self-forgetfulness. During his administration of the office of Treasurer, many very serious questions of policy have arisen and many important decisions regarding the choice of professors and other officers have had to be made.

It is deeply to be regretted that the increasing pressure of his own affairs must deprive the Institute of his continued services as Treasurer. Happily, however, it is not to be deprived of his counsel, since he remains a member of the Corporation.

It would be unbecoming, as it would be unwelcome to Mr. Wigglesworth, to refer to that more personal side which has so deeply endeared him to every one at the Institute fortunate enough to be brought in contact with him. His unfailing courtesy, his inexhaustible patience, his unhesitating willingness to place himself and his resources at the service of any sound project for the development of the school, and his very

personal and intimate interest in the members of the instructing staff, the undergraduate body, and the alumni, have developed in the hearts of Institute men a fund of grateful devotion which, it is to be hoped, may be some compensation for the long years of service which he has so freely given.

The Institute of Technology is too large a force to suffer irretrievably through the loss of any individual, however eminent. But that it has become so important a force is due in a greater degree than any one can possibly measure to the fact that during sixteen of its most important years of development it has had as its chief financial officer and as one of its leading councillors such a rare man as is George Wigglesworth.

THE NEW TREASURER

FRANCIS RUSSELL HART, '89

At a regular meeting of the Corporation, on October 9, Mr. Francis Russell Hart was elected Treasurer of the Institute, to succeed Mr. George Wigglesworth, whose greatly regretted resignation took effect on October 1.

Mr. Hart was born at New Bedford, Mass., Jan. 16, 1868. He received his preliminary education at the Friends' Academy, New Bedford, and entered the Institute in the fall of 1885. He pursued a regular course in electrical engineering until within a few months of graduation, when illness made it impossible for him to complete his thesis work and to secure a degree. While an undergraduate, he was editor-in-chief of the *Technology Quarterly*, established by the students and subsequently taken over by the Society of Arts, and was president of the Photographic Society.

During the four years immediately following his leaving the Institute, Mr. Hart did engineering work of various kinds in the West Indies and in the United States. In 1893 he was made general manager of the Cartagena Terminal and Improvement company, Ltd., and of the Cartagena-Magdalena Railway Company, with headquarters at Cartagena, Colombia, S.A. In the following year he became vice-president, as well as general manager, of the same companies, and in 1895 he was made president, with headquarters at Boston. Since 1896 he has been also vice-president of the Old Colony Trust Company.

Mr. Hart has presented various papers before the Society of Arts, and is a fellow of the Royal Geographical Society and a member of other learned societies. He lives at Milton, Mass., where he is active in public affairs, being chairman

of the Board of Sewer Commissioners, a trustee of the savings-bank, a trustee of Milton Academy, etc.

In addition to the positions already noted, Mr. Hart is president of the Lowell Electric Light Corporation, vice-president of the Northern Railway Company of Costa Rica, and director or trustee in numerous other public service and private corporations.

THE ACTING PRESIDENT

ARTHUR AMOS NOYES, '86

Professor Noyes, whose appointment as Acting President by the Executive Committee was noted in the July REVIEW was confirmed in that office at the meeting of the Corporation on October 9. He was born in Newburyport, Mass., Sept. 13, 1866, and was graduated from the Institute, Bachelor of Science in 1886 and Master of Science in 1887. In 1890 he took a Ph.D. at Leipzig, and, excepting for the two years' absence necessary to secure this degree, has been on the Instructing Staff at the Institute for twenty years. He has been a member of the Faculty, in the Department of Chemistry, since 1894.

In 1903 Dr. Noyes was made Director of the Research Laboratory of Physical Chemistry, to the support of which he has been a generous contributor; and under his direction fellows of this laboratory have made notable contributions in the field of Physico-Chemistry. In 1906 he was elected Chairman of the Faculty.

Professor Noyes has published several volumes, as well as numerous papers on original researches in theoretical and organic chemistry. For the present he has given up all teaching work, excepting that connected with his position as Director of the Research Laboratory, and is devoting himself to the many problems of administration.

GENERAL INSTITUTE NEWS

THE CORPORATION

A regular meeting of the Corporation was held at the Institute on the afternoon of Oct. 9, 1907, Acting President Noyes being in the chair. Professor Noyes's appointment by the Executive Committee as Acting President was confirmed. The resignation of Mr. George Wigglesworth as Treasurer was accepted with great regret; and Mr. Francis R. Hart was elected Treasurer to succeed him. The following resolutions were presented by Mr. Munroe, and it was voted that they be spread upon the records:—

In accepting the resignation as Treasurer of George Wigglesworth, Esq., the Corporation of the Massachusetts Institute of Technology desire to place upon record their high appreciation of and their profound gratitude for his devoted services, which have extended from March, 1891 to the present date.

During this period of more than sixteen years he has freely given to the Institute not only a large measure of his time and energy, but also the fruits of his sound judgment in monetary affairs and of his rare experience in positions of trust. To the trying and perplexing task of handling inadequate and uncertain resources he has brought unflagging skill, wisdom, resourcefulness, and impartiality.

Moreover, as a member, *ex officio*, of the Executive Committee of the Corporation, he has devoted fully as much time, thought, and study to questions of educational policy as to those of finance; and in dealing with all these problems, as well as with those of money, he has shown a thoroughness, a patience, a judicial temper, and an unflagging courtesy which will make his services to the Institute always memorable.

Mr. Frederick W. Wood, '77, was elected a member of the Executive Committee to succeed himself. Dr. Francis H. Williams, having resigned the Secretaryship of the Corporation after many years of devoted service, the Nominating Committee brought in

the name of Mr. James P. Munroe, who was elected to succeed him. The Nominating Committee presented also various changes in the Visiting and other committees, which were adopted. The following appointments by the Executive Committee were confirmed:—

Promotions.—Harrison W. Smith, Associate Professor of Electrical Engineering; George E. Russell, Assistant Professor of Civil Engineering; Miles S. Sherrill, Assistant Professor of Theoretical Chemistry; Royall D. Bradbury, Instructor in Civil Engineering; Rufus C. Reed, Instructor in Mining Engineering and Metallurgy.

Changes of Title.—Raymond Haskell, Ph.D., and Herbert Thomas Kalmus, Ph.D., Instructors in Physics; Gilbert Newton Lewis, Ph.D., Acting Director of Research Laboratory of Physical Chemistry; Hermann William Mahr, Research Assistant in Technical Chemistry; Ellwood Barker Spear, B.A., Instructor in Analytical Chemistry.

New Appointments.—Edward Everett Bugbee, S.B., Assistant Professor Assaying; Lewis Eugene Moore, C.E., Assistant Professor Civil Engineering; Hubert de Chamberay, B.S., and Johannes Waldemar Rabe, A.B., Instructors Modern Languages; Charles Everett Allen, S.B., Henry Bissell Alvord, S.B., James Madison Barker, S.B., Raymond Francis Conron, S.B., Allan Reginald Cullimore, S.B., James Ernest Garratt, S.B., Hudson Bridge Hastings, S.B., Clarence Decatur Howe, S.B., Assistants Civil Engineering; William Walter Bigelow, S.B., Charles Albert Eaton, S.B., Robert Sherman Gardner, S.B., Kenneth Moller, A.B., S.B., Bryant Nichols, S.B., Elliot Williams Taylor, B.S., John Joseph Thomas, S.B., Assistants Mechanical Engineering; Frederick A. Grant, and Angelo Tilton Heywood, S.B., Assistants Mining Engineering; George Brinton Thomas, M.E., Assistant Electrical Engineering; Carleton B. Nickerson, A.B., A.M., and William Walker Kennedy, S.B., Assistants Inorganic Chemistry; Walter Brayton Gonder, S.B., and Octavus Libbey Peabody, S.B., Assistants Analytical Chemistry; Roger David Gale, S.B., Assistant Theoretical Chemistry; Evie James Edwards, B.S., and Edmund Hincks Squire, S.B., Assistants Physics; Charles Horace Clapp, S.B., Assistant Geology; John Johnston, Ph.D., and Carl von Ende, Ph.D., Research Associates

Physical Chemistry; Roger David Gale, S.B., Research Assistant Physical Chemistry; Richard George Woodbridge, Jr., S.B., Research Assistant Organic Chemistry.

During the morning of October 9, upon invitation of Acting President Noyes, a large number of members of the Corporation, together with certain representatives of the Faculty, met at the President's office to discuss informally various important questions now before the Institute. Professor Noyes outlined the several problems, and there followed a long and interesting debate, mainly upon the question of site.

NEW STUDENTS

The total number of students who are enrolled at the Institute after the end of the first week this year is 17 larger than the number last year. This year 1,390 have registered as compared with 1,373 last year. The numbers for the three years previous to that are 1,429, 1,546, and 1,532.

Of the 1,400 students registered this year, somewhat over 500 are new students, and of these 500 about 325 entered the first-year class, the majority of these having taken entrance examinations. The number of students coming to the Institute from other colleges is greater this year than ever before, and apparently those who have come after having spent only two years at other colleges is larger this year than previously. Students previously coming to us from colleges have entered to the greater extent the third year, while to a less extent the second and fourth years.

The new students this year come from almost all the United States. Only five are not represented: namely, Delaware, Louisiana, North Dakota, Idaho, and Wyoming. Seventeen foreign countries are also represented by this new delegation.

The usual interest has been taken in the incoming class, and already it has been entertained by the Y. M. C. A. and dined by the *Tech* at the Union. At these meetings great enthusiasm and unity of spirit have been shown.

DEPARTMENT NOTES

CIVIL ENGINEERING

Mr. L. E. Moore, Instructor in Mechanics and the Strength of Materials at the University of Illinois, has been appointed Assistant Professor of Civil Engineering, to take the place of Professor McKibben.

After graduating from the Department of Mechanical Engineering at the University of Wisconsin, Mr. Moore studied Structural Engineering at the Institute, and after leaving was employed for some time by the Phœnix Bridge Company. Since then he has been at the University of Wisconsin and at the University of Illinois. Mr. Moore has during the past summer been employed upon the work of abolishing grade crossings in Chicago.

Mr. R. D. Bradbury, who has been Assistant in Civil Engineering, has been promoted to the grade of Instructor, and will assist Professor Moore in the work of the fourth year.

Mr. George E. Russell has been promoted to be Assistant Professor of Civil Engineering. After graduating in 1900, Mr. Russell was Assistant here for a year. After this he was employed by the American Car Foundry Company for a number of years. He left the employ of that corporation to teach at Cornell University, and came here as Instructor two years ago.

MECHANICAL ENGINEERING

The modifications in the course, recently adopted by the Faculty, will come into operation with the second-year's class during the present school year.

Of the time gained by dropping one year of language, sixty hours have been added to that given to English Literature and History, while the remainder has been used mainly to increase that given to Applied Mechanics and to Steam Engineering. Moreover, Power Plant Design has been added, and the time given to electrical subjects has been increased.

These changes became necessary on account of the modern developments in engineering practice.

The Superheater has been installed, and will furnish the means for studying questions regarding superheated steam on a practical scale.

A five hundred K. W. Westinghouse Parsons steam turbine, fitted with a hydraulic brake, has been ordered, and will be installed during the second term of 1907–08.

It will furnish the means of studying experimentally and on a practical scale many problems relating to this prime mover, which has become such an important factor in engineering.

The price was brought within our reach through the kindness of the Westinghouse Machine Company, who made us a liberal donation.

A twenty-inch centrifugal machine and a thirty-six-inch hydro-extractor have been added for the purpose of studying experimentally the laws of running balance with high-speed machinery.

Professor Lanza has recently been in Jamestown, serving as a member of the Jury of Awards of the Exposition.

MINING AND METALLURGY

Professor Richard W. Lodge has resigned his position as Assistant Professor of Mining Engineering and Metallurgy after a period of long and faithful service, beginning in September, 1888. He carries with him the thanks of the department for service rendered and best wishes for many years of interesting professional career. He has been invited to make the department his headquarters and to have his desk there. Mr. E. E. Bugbee, class of 1900, has been appointed to the position. Professor Bugbee has had charge of similar work at the Iowa State College and the University of Washington in Seattle. He has been in the service of the United States Geological Survey during the summer. He will therefore bring to the school much outside experience for the benefit of the course.

The demand for graduates in this department has been unprecedented, not only for mines, mills, and furnaces, but for schools of mining. The department has found difficulty in securing the

necessary assistants. Mr. R. C. Reed has returned for another year to help on the work.

GEOLOGY.

Professor Jaggar, of the Department of Geology, returned for the opening of the term after a very successful journey to the Aleutian Islands. It is hoped to have an extended account of the expedition in a later issue of the REVIEW.

THE UNDERGRADUATES

THE OPENING

The regular session for 1907–08 began on October 2 with the usual somewhat complicated process of registration. At one o'clock Huntington Hall was filled with students to listen to the annual greeting from the Faculty, given by Acting President Noyes.

On Friday evening the Technology Y. M. C. A. gave a reception at the Union to the Freshman Class, which was very largely attended. President Reid, '08, introduced the speakers, who were Dean Burton; Captain Orr, '08, of the track team; Hoole, '08, editor-in-chief of the *Tech;* Vonnegut, '08, for the Tech Show; and Secretary Brock, of the Y. M. C. A.

On the following Saturday evening the *Tech* gave its annual dinner to the Freshmen at the Union, Mr. H. W. Hoole presiding. Over one hundred and fifty were in attendance, and the speakers were Dean Burton; Bursar Rand; John S. Tobin, manager of the track team; Coach Kanaly; Captain Loring, of the fencing team; Mr. Humphreys, Registrar of the Institute; I. W. Litchfield, '85; and J. P. Munroe, '82. At both the Y. M. C. A. Reception and the *Tech* Dinner the Freshmen were initiated into the singing of the standard Tech songs, which were given with much spirit.

THE CLASSES

1909.—The class, temporarily dispersed during the summer, have not, however, lost their feeling of solidarity, but have been diligently preparing the material for "Technique, 1909," which they hope to make into a book worthy of its predecessors.

1910.—The first class meeting was held Saturday noon, October 5, with a large attendance. The following were elected: William D. Everett, manager of the football team; P. D. Terry, assist-

ant manager of the football team; C. C. Dudley, manager of the tug-of-war team; B. Reynolds, manager of the track team; and H. D. Billings, baseball manager. Harold C. Manson, at the meeting of the football team, was elected captain. It was the sense of the meeting that the Sophomores should not molest the Freshmen after the *Tech* Dinner. As a result, the annual cheering of the Freshmen on Rogers steps on Saturday evening was not interfered with.

1911.—The class held its first meeting on October 2. President Moses, of the Junior Class, welcomed the men, and there were various speeches from '09 men regarding Field Day. The election resulted as follows: chairman, G. A. Cowee, of Andover; secretary, Stamford, of Polytechnic Preparatory; treasurer, Cushman, of M. A. H. S.; football manager, Odell of M. A. H. S.; track manager, Lloyd Cooley, Brookline High School; tug-of-war manager, Kimball, of Salt Lake City High School.

ELECTRICAL ENGINEERING SOCIETY

The Electrical Engineering Society opened its year with a large and enthusiastic meeting at the Union, October 11. Professor Jackson was the first speaker of the evening. He indorsed the aims of the society, and urged the men to attend its meetings and become mutually acquainted. He next spoke of the attitude the men ought to assume toward any speaker whom they might hear at any time, suggesting that they should consider him with regard to his own specialty and how he had attained his prominence.

Professor Harrison W. Smith spoke to the men of the value of a knowledge of human nature.

THE TECH SHOW

The Tech Show management for the year 1907–08 is as follows: general manager, Frederick A. Dewey, '09; business manager, Curtis C. Webb, '10; stage manager, G. A. Joslin, '09; assistant

stage manager, R. Goodwin, '10; assistant advertising manager, R. Leavens, '10.

Some changes will probably be made in the management, and there are five places to be filled.

ATHLETICS

THE NEW COACH

Frank M. Kanaly, the well-known distance runner, has been engaged by the Athletic Advisory Council to act as trainer for the ensuing season.

He was track coach at Noble and Greenough for two years, at Colby College for three, and also trained the Tufts team for two seasons.

Mr. Kanaly has given a great deal of attention to cross-country work, and intends to make a specialty of it this year. He won the New England interscholastic one-mile championship in 1900, and the same year he won the ten-mile cross-country championship of New England, breaking a record which had stood for years against the efforts of the best runners of the country. At the Pan-American Exposition he won the A. A. U. five-mile championship and the national one-mile championship.

FENCING

Coach Fournon, of the fencing team, has started a fencing club for Tech men, to be located at 22 St. Botolph Street. The membership will cost $5 a month, and this price will include instruction to beginners. Shower-baths and club-rooms for members will be provided.

PHYSICAL EXAMINATION OF FRESHMEN

An important change has been made in the Department of Physical Training in requiring every first-year student to take a physical examination. The object of the Institute in requiring this is to

give every man an idea of his own physical condition. Those who are markedly deficient will be so notified, and will be advised for their own welfare to take some form of exercise. There will be nothing compulsory in this action, it merely being desired to help the men to help themselves.

The examination, which is a very thorough one, will consist of the following tests and measurements: weight, height, girth of head, neck, chest, normal and inflated, ninth rib, normal and inflated, waist, hips, thighs, calves, upper arms and fore arms; depth of chest, girth of abdomen, breadth of shoulder, stretch of arms, strength and capacity of lungs, strength of back, legs, upper arms and fore arms.

The examinations will be made by the gymnasium instructor, Mr. Winfield Towne, at the gymnasium.

THE GRADUATES

CINCINNATI M. I. T. CLUB

The Cincinnati M. I. T. Club has suffered a loss during the past summer by the death of one of its members, Dr. Thomas Evans, who died at Cincinnati, Ohio, on June 28, 1907. Although he was never a student at the Institute, he had taught there for a short time, and was therefore counted as one of our members. His keen interest in Institute affairs and his wide acquaintance with Tech men always made his presence at our local meetings a distinct pleasure to all present. In local scientific circles, where he has always been active, his death will be felt by all of his former associates.

J. W. Ellms, '93, *Secretary*,
East Court and Martin Streets, Cincinnati, Ohio.

TECHNOLOGY CLUB OF NORTHERN OHIO

Members are getting together informally at 12.30 P.M. every Saturday for lunch at the Bismarck. Cordial invitation to participate is extended to any Tech man, whether graduate or not, who may happen to be in Cleveland temporarily.

Sidney Y. Ball, '03, *Secretary*,
Ball Building, Cleveland, Ohio.

TECHNOLOGY CLUB OF THE SOUTH

A reunion of the graduates of the Massachusetts Institute of Technology was held on Thursday evening, May 30, at West End, New Orleans. Dinner was served by Tranchina, the table being decorated with the college colors. Mr. Albert Godchaux was elected toastmaster, and speeches, taking the form of reminiscences, were heard.

It was decided to form a permanent organization under the name of "Technology Club of the South" and to hold quarterly meetings, Mr. Allison Owen being elected president, and Mr. F. W. Crosby secretary and treasurer. Those present were: P. H. Babcock, '00; Asa J. Briggs, '05; F. W. Crosby, '90; Albert Godchaux, '92; Jules Godchaux, '92; Allison Owen, '93; John L. Porter, '00; David Schwartz, '97; Joseph Sears, '98; Walter G. Zimmermann, '98.

Invited as honorary guests were A. M. Locket, George G. Earl, chief engineer of Water Board, Benjamin Willard, of the General Electric Company, and J. J. Brown.

F. W. CROSBY, '90, *Secretary*,
706 Morris Building, New Orleans, La.

THE TECHNOLOGY CLUB

On the ninth evening of the season, April 17, Mr. James P. Munroe gave a smoke talk at the club on "The Heart of the United States." He described the peculiar development which has taken place in the people of the Middle West during the rapid growth of that part of the United States, and he pointed out how this development, centred in the State of Illinois, has a preponderant effect on the ideals of the whole United States.

On April 30, a ladies' night, Mr. Harris Kennedy, M.D., gave an interesting talk on "Glimpses of Rural Japan." This was illustrated by many lantern slides.

On May 1, the eleventh evening of the season, also a ladies' night, the M. I. T. Glee, Mandolin, and Banjo Clubs gave a concert. This is the second time the musical clubs have entertained the club, and was such a success that it is hoped that such a concert may be held each year.

On May 21, the twelfth evening, Mr. Frank B. Tracy, of the Boston *Transcript*, gave a smoke talk on "North Dakota and its Blizzards." As Mr. Tracy has lived in North Dakota and had many experiences there, the talk, with subsequent discussion, was particularly interesting.

In May the following special announcement was made:—

The House Committee is pleased to announce that, owing to the favorable reception of its service of lunch *à la carte* in conjunction with the usual *table d'hôte*, the same service has been extended to include breakfast. This will enable members who do not desire the full breakfast at 40 cents to make a more suitable selection at possibly less expense. It is hoped that the innovation will greatly increase the attendance at breakfast.

The following letter was sent to all Technology men whose addresses were on file at the alumni office:—

MAY 29, 1907.

To Technology Men:

After twelve years of successful existence the Technology Club is warranted in an ambition to increase its sphere of usefulness among Technology men. During these years the number of Tech men eligible for membership has nearly doubled. The Club's membership, however, has not increased in like proportion. In view of this the Executive Committee desires to call your attention both to the present advantages offered by the Club and to the greatly increased facilities it could offer if its membership were brought up to a number more adequately representing the large body of Technology men.

No club in the city gives as much for so little,—*table d'hôte* breakfast or lunch, 40 cents (also served *à la carte*); *table d'hôte* dinner, 60 cents; billiards and pool; reading and lounging rooms; many evening entertainments; sleeping-rooms for transient guests; in short, it is a well-equipped meeting place for Tech men, and should be headquarters for Technology activities. The dues of resident members are $20; non-resident, $6. Admission fee, $10 and $5, respectively.

A doubling of the membership would not only render the Club independent of the location of the Institute, but would assure the one thing that we should have to more adequately meet the growing needs of Technology men,—a larger club-house, with greatly increased facilities, such as better accommodation for private dinners, more sleeping-rooms for out-of-town members, some rooms for permanent occupancy, and more adequate provision for ladies.

It is earnestly desired that the Club obtain the required increase in membership as soon as possible, that it may be in position to develop its plans with an assured support. To that end the Executive Committee has decided to remit, in the case of new members, the present semi-annual pay-

ment of dues (April 1 to October 1), thus admitting applicants upon acceptance of application and payment of admission fee only. An application blank is enclosed herewith. Any man at some time connected with the Institute is eligible.

You are cordially invited to visit the club-house, and members will be pleased to present your applications for membership. Are you with us in the ambition for a more representative Technology Club?

EXECUTIVE COMMITTEE.

The following note was sent to all club members:—

To our Members:

The enclosed circular letter has been sent to Technology men: it explains itself. We all want a better club. It is up to you to get it.

If every member will make occasion to talk to his Tech acquaintance,—they will have seen the circular,—invite them to visit the club-house, and get applications, the doubling of membership will be assured. We do not ask each member to get *one* other, and quit: go after *ten*, and then we may *average* one new member each.

Don't let the other fellows do it all. Mere payment of dues never made a club. If all pull together, we will win.

EXECUTIVE COMMITTEE.

The members are to be commended for the response in this movement, and are urged to keep up the good work.

ANGELO T. HEYWOOD, '06, *Secretary*,
83 Newbury Street, Boston.

NEWS FROM THE CLASSES

1868.

PROF. ROBERT H. RICHARDS, *Sec.*, Mass. Inst. of Tech., Boston.

Since the last issue of the REVIEW we have to record the death of A. F. Hall, who for the accuracy and care with which he did his work stood very high in the mechanical engineering profession. He organized and put in operation the method of pump manufacturing which has been adopted throughout the country by all the different companies. The obituary notice from the *Transcript* of July 23, 1907, is here quoted:—

Mr. Albert Francis Hall, who died in Somerville yesterday, was born in that town in 1845, although from early infancy he lived in Charlestown, where he attended the public schools, going from the grammar school, however, to work, as boys were wont to do in those days. After a few years of experience with a mercantile house and a manufacturing establishment (where he kicked the lathe a long period), his ambition for the development of his natural tastes led him to prepare for school again, and he entered the Massachusetts Institute of Technology at its opening, graduating in 1868 with its first class, numbering ten, he being the only mechanical engineer. He further pursued his studies, and acquired a thorough knowledge of German during a prolonged sojourn in Hanover, where he attended the polytechnic schools, and where he was a witness of many stirring scenes connected with the Franco-Prussian War. After his return to America he became associated with the George F. Blake Manufacturing Company, remaining with it as constructing engineer for many years, and after its absorption by other interests he continued with the consolidated companies until his death.

Some of his improvements introduced in the construction of steam pumps were covered by patents, but Mr. Hall could never see his own interests above those of his company, and he therefore remained in obscurity. His recognition by the founder of the company, George F. Blake, was a priceless source of satisfaction to him.

In his early career Mr. Hall taught mechanical drawing at the Institute of Technology and also in the evening schools of Boston, and gave private instruction in German. He was a member of the American Society of Mechanical Engineers, American Society of Civil Engineers, English Society of Civil Engineers, and German Society of Mechanical Engineers. With a natural fondness for all kinds of lettering, he became master of the pen, and for over thirty years—up to the present—he had engrossed the degrees for Harvard College, and prepared many important communications upon parchment from that college to sister institutions of learning.

He leaves four children, a daughter and three sons. His oldest son is a chemical engineer (Technology, 1902), another is in Harvard College, and the youngest in the high school. He had been an indefatigable and conscientious worker all his life, and his physical strength was unable to cope with an illness which came to him during last winter.

—Word comes from Ellery C. Appleton that he is employed by the C. & A. R.R. at Springfield, Ill., under Mr. Felton. His family is living at Prescott, Ark.—Robert H. Richards has had an extremely interesting summer. Three weeks in June and three weeks in July he spent at Randolph, N.H., in Mrs. Richards's camp, with four assistants, Bardwell and Watt, '06, McMillin, '07, and Miss Shattuck (secretary), at work upon the next (3d) volume of his work on Ore-dressing. During the remainder of the summer he was at work on a practical mill problem in St. François County, Missouri, Great Falls, Mont., Clear Creek and Boulder Counties, Colorado. His new pulsator and another hindered settling classifier engaged a part of his attention. The pulsator is made by the Denver Engineering Works (Frank E. Shepard, '87), and gives promise of being the most efficient apparatus for certain ore concentration problems on the market. The following extracts are from the *Daily Tribune* of Great Falls, Mont., Aug. 11, 1907:—

Professor R. H. Richards, of the Massachusetts Institute of Technology, was at the Boston and Montana Works all of last week, in consultation with the management regarding the equipment for the proposed addition of 1,000 tons per day to the concentrating capacity of the works. . . .

Professor Richards has been the guest of Manager Goodale and Miss Goodale during his visit, and Tuesday evening Mr. Goodale invited all of the professor's former students who are now employed by the Boston and Montana Company, to meet him. There were at this "Tech" reunion Goodale, class of '75; Wheeler, '95; Snow, '00; Roberts, '00; Kehew, '03; Bates, '04; Harrington, Hallowell, and Ruggles, '06. Mrs. Wheeler, Mrs. Snow, Mrs. Kehew, and Mrs. Harrington were also present, and assisted Miss Goodale in the entertainment. . . .

1877.

RICHARD A. HALE, *Sec.*, Lawrence, Mass.

B. C. Mudge is president of the Oxford Linen Mills, with the Boston office at 76 Essex Building and factories at Gardner, Mass. The capital is stated as $2,000,000.—R. A. Hale read a paper on "Water Rights" at the New England Water Works Convention held at Springfield, Mass., September 13. Main, '76, read a paper on "Computation of Values of Water Power, etc." Main, Metcalf, '92, and Hale, with others, were appointed a committee to consider the question of water damages and collect various statistics in regard to the subject.—The secretary is collecting data and photographs for a new directory, and wishes all members to send material as rapidly as possible. It is intended to publish half-tones of the men as they are at present and as they were thirty years ago.

1878.

LINWOOD O. TOWNE, *Sec.*, Haverhill, Mass.

The secretary has an idea that his state of mind as to information of his classmates is pretty much on a par with that of most secretaries of earlier classes. So far as this department is concerned, one might infer that the old grads. were doing nothing,—at least nothing worthy of mention. The contrary fact is probably true,—

doing so much that they haven't time to write a mere secretary, likewise not frequently changing jobs. This particular secretary, prodding himself after the editor has prodded, sees no way to make copy but to follow the lead of the illustrious scribe of '68, and tell what *he* has done this summer. Coming to that, it isn't so much to say he's been to Cobalt; but, when that visit found him encompassed, so to speak, by a lot of younger grads. and under-grads., he feels like cheering up and telling about it. This secretary of Course III. spent some eight years in Colorado in the '80's, half of it with the companionship of another mining engineer who gladdened the camp with a bride and, duly, a baby boy. This spring a renewal of the twenty years ago friendship found our friend in Cobalt managing the Trethewey, while the baby boy had grown into Loring, '09, captain of the fencing team. All this meant one grand August reunion at Cobalt, Ontario. Hither, too, but on hard labor bent, had come some fifteen other M. I. T.'s Course III., finding permanent or vacation jobs. The Trethewey gathered in nine, who were set to work properly by Earle Crane, '02, superintendent, who has with him regularly John Shaw, '04. It was a joyous sight to walk around and see them work: Joslin, '09, and Goodwin, '10, made a team at the grand prize of a "machine" on underground drilling, blasting, etc., becandled and besoiled like old-timers. Grübnau, White, Shaffer, and Loring, all of '09, variously "cobbed" or "mucked" (Crane declared they too conscientiously almost dug away the rails) or "trucked," which latter proceeding was periodically made gymnastic by the car most mysteriously getting its centre of gravity beyond the base and rolling ignominiously down the dump. It was a sight for a Tech professor in English to see Loring, begrimed with duties in the shaft-house, between ascending buckets of ore, delving deep in the riches of summer reading in Herbert Spencer. Flint Elder, '07, seemed to hold down the softest job, running a steam pump, where, greasy and dirty, he revelled in the delights of Le Conte. Heywood, '06, labored at the Coniagas (a name, with its symbolic Co-Ni-Ag-As make-up, as clever in its way as the Uneeda man's happy thought), while Penny, '08, was on the Nipissing. But the height of distinc-

tion belongs to Angus E. Burt, '08, who in various ways assisted in bringing Ag out of the O'Brien mine. The Western Federation of Miners declaring a strike, and the street-speakers rather contemptuously referring to M. I. T.'s as "them students," Burt it was who alone held the honor of figuring on the Federation blackboard "scab-list." And it is extremely doubtful if he ever paid the necessary V as admission to the Union ranks. O' evenings it was a delight to an old grad.'s heart when the younger men got together on Trethewey Hill, overlooking the sad, rambling town below, and gave vent to Tech feelings in "On Rogers' Steps," "Dear Old M. I. T.," and the "Stein Song." We doubt not that next term, viewing their tenderfoot course-mates, they will somewhat haughtily sing, "We've had experience,"—to say nothing of criticising the instruction offered. Elder and Grübnau in latter August essayed a 1,200-mile canoe trip from Lake Temiscaming down the Ottawa River, and so on to Montreal, thence to Albany via Lake Champlain, etc. At writing they are reported nearing the Canadian metropolis, and seem in good prospect of having Joslin and Goodwin set up the dinners for them on their late September arrival in Boston town. To the writer the time spent in this camp, whether enjoying the wonders of the mines, the log-cabin hospitality, the delicious piney air, the paddling on or swimming in the lakes, the swapping tales of old Colorado days with Loring, Sr., or having these undergrads. rather allow you were birds of their feather,—all these things made an August of rare delight.—Frank P. Vogl died July 20, 1907. "Mr. Vogl overworked himself in the interests of Monadnock Mills, which concern he built up, and also himself built and established the Claremont Gas Light Company. At fifty years of age he was too young to lay down his work, but it was 'duty well done.'" When a Freshman, Vogl and the secretary were desk-mates in the drawing-room, and it was with most sincere regret that early in the course we saw leaving us one who was so completely a gentleman,—modest, courteous, earnest, thoughtful, and unselfish. That the class has seen little of him in recent years has been most unfortunate for us.

1882.

WALTER B. SNOW, *Sec.*, 170 Summer Street, Boston, Mass.

Adams, from whom no direct news has been received for many years, is still in Honolulu, Hawaii.—Deering was abroad during the spring and early summer.—The firm of Hoppin & Ely has been dissolved. Ely's office remains at 32 Westminster Street, Providence, R.I.—Faunce is vice-president of the Carnegie National Bank, Carnegie, Pa.—Jones's residence is Washburn Park, and his summer residence at Deephaven, Lake Minnetonka, Minn.—Snow severed his connection with the B. F. Sturtevant Company in July, and is now located at 170 Summer Street, Boston. He is devoting himself to publicity engineering, improvement in industrial methods, special investigations, etc.—George L. Heins died September 26, at his summer home at Lake Mohegan, N.Y., where he had been confined for several weeks with meningitis. He leaves an enduring monument in the cathedral of St. John the Divine, on Morningside Heights, New York City, of which Heins and La Farge were the selected architects through a notable competition. Since his appointment in 1899 by Governor Roosevelt, Heins had met the exacting duties of State Architect of New York. His work stands as an honor to his class and to the Institute.

1885.

I. W. LITCHFIELD, *Sec.*, 10 Kenmore Street, Boston, Mass.

E. B. Homer has become a partner in the firm of Clarke & Howe at 72 Weybosset Street, Providence, R.I., and the firm will continue practice under the name of Clarke, Howe & Homer.

1887.

EDWARD G. THOMAS, *Sec.*, 80 Wall Street, New York, N.Y.

The *Mining and Scientific Press* of San Francisco in its issue of June 15 prints in full an address of Frank E. Shepard to the graduating class of the Colorado School of Mines. In an editorial in the same issue the *Press* gives deserved praise to Mr. Shepard, and states that "the young men at Golden will have gained from Mr. Shepard's appeal for a higher standard, and we commend it to the older men also." . . .

The good class of '87 assembled for its twentieth anniversary at Chebacco Island in the Essex River, Mass., on June 15, 16, and 17, 1907. This delightful island, situated about a mile above the sea and commanding a view of the ocean from Cape Ann to Ipswich, was put at our disposal by the courtesy of Julian Cameron, to whom all were indebted, not only for this favor, but also for his active work in arranging for our reception. By automobile, motor boat, and train the men gathered till the following thirty-six answered the roll: H. S. Adams, Bryant, Burgess, Carter, Carpenter, Coburn, Crosby, Coombs, Carleton, Cameron, Cobb, Carney, A. L. Cushing, W. M. Currier, Draper, Douglas, Fish, Hussey, Hobart, Lane, Mulliken, McColl, Nutter, H. D. Sears, Spaulding, Sprague, Souther, Taintor, E. G. Thomas, F. A. Thomas, Todd, F. Thompson, G. Whitney, W. A. Whitney, Wakefield, and Very. We occupied five cottages belonging to Cameron and his family, and a marquee was erected in a most sightly spot, and served for our dining-room. Our material wants and all household cares were looked after by Joe Hendrie and a corp of helpers, and this part of our arrangements was without flaw. Joe appreciated that we were hungry for steamed clams and short lobsters rather than for *pâté-de-foie-gras*. '87's specialty always was baseball, so the strenuous members of our party and other drafted men gave close attention to the national game under modified rules which permitted the use of a ball six inches in diameter and a decided shortening of the base lines. The tennis court and tether-ball pole

were also kept busy. On the second day of our stay a grand athletic carnival was held, from which no one was exempt and many records were broken. The prizes were awarded satisfactorily, the only protest being from Carpenter, who contested the award in the standing broad jump on the ground that foot-pounds exerted (distance covered × weight moved) should govern the award rather than distance alone. On that basis he had a cinch, so his argument was turned down. He later showed, however, that he did not care how much he carried by handily winning a dory race across the channel and back. Dress parade on Monday morning brought out a variety of beautiful (?) costumes, among which those of Grace Darling Thompson and Susie Souther were most effective, as displayed by their graceful wearers. Our most interesting stunt was a stereopticon show on Sunday evening. First there were shown on the screen about fifty views of old scenes, groups, and events in the years 1883–87 and the faces of some of us who have passed away. These pictures brought to us most vividly the old days and pointed out, in the sincere friendships then formed, the reasons for '87's unity and class spirit which has endured undiminished for twenty years. After these views were shown, Todd showed nearly two hundred views of a trip which he took with Mrs. Todd and others through the Yellowstone Park and Jackson's Hole, which were of great beauty and interest. While many of the men were forced by business affairs to leave on Sunday and Monday, more than a corporal's guard stayed till Tuesday morning, but each one went away voting our twentieth the most successful of our four reunions, and renewed in loyalty to '87 and the Institute.—Schmidt has recently finished the Michael Reese Hospital, a magnificent Jewish charity in Chicago of which he was retained as architect. This hospital is one of the finest in the country in its appointments, and has cost over a million dollars. It is absolutely fireproof. An illustrated article in the Chicago *Record-Herald*, June 18, 1907, shows it to be a most striking six-story building, situated near the lake front.—Shepard delivered the annual address to the students of the Colorado School of Mines at Boulder, Col., at the commencement exercises in June. —Sprague spent August and September in Alaska on an inspection

of mining properties.—McColl was with us only a short time in Institute days, and has had no opportunity to renew acquaintance with us till this year, when the reunion was too promising an occasion for him to miss. He is secretary and active in the management of the Nova Scotia Iron and Steel Company at New Glasgow, N.S. —The many friends and business acquaintances of Charles K. Stearns were shocked to learn of his death, at his home in Boston, on May 13 last. Mr. Stearns had been connected with the electrical industry ever since the beginning of his professional career. His early experience as engineer of the North-west Thomson-Houston Company and the succeeding administration of the General Electric Company gave him a varied experience and a complete acquaintance with the engineering questions connected with street railroad and lighting properties, which rendered his advice in his later work as consulting engineer of the utmost value to his clients. He was very thorough in his work, and designed the many plants which were put into his hands with rare good judgment and foresight. His illness was short, as he had been in his usual good health up to a few days before he left his office for the last time. Stearns was born in 1864, in Newton, Mass., and was educated in the Newton public schools and the Massachusetts Institute of Technology, graduating in 1887. He was married in 1889 to Miss Ethel Hunter, of Newton Centre, who survives him. Spaulding, who was most intimately acquainted with him, writes as follows in the *Electrical Review*:—

In Charles K. Stearns the engineering profession loses one of the kind of men it can ill afford to lose, one of the men who combined in a rare degree the result of technical training, practical experience, and sterling integrity. In private life and in his work the keynote of every action might fittingly be expressed in the two words, "thoroughness" and "sincerity." In commercial electrical engineering, especially as applied to railroad methods and economics, many a detail of design and construction now accepted as "standard" is due to his ingenuity and initiative. With a heart as tender as a woman's in family and personal relations, but with a conservative and coolly analytical judgment, inherited from good old New England Puritan stock, his was a rarely balanced temperament. Many a struggling salesman and contractor has good reason to remember his readiness to "help out"

on a genuine error or unfortunate business condition for which he was not responsible, but the "shirk" or "quitter" found him inexorable, as the record of many a railroad and power and lighting system will bear silent evidence to-day. To his friends a friend of friends; to his employers a faithful servitor; to his business associates a rare exponent of the "square deal" in business relations; and to all who knew him a gentleman; broad in liberality to others and narrow in the performance of self-manifest duty,—such was the character of Charles K. Stearns.

1888.

WILLIAM G. SNOW, *Sec.*, 1106 Penn Mutual Building, Boston.

Some important changes in and additions to the official staff of the Northern Pacific Railway Company have been made to provide for the most rapid work in adding to the railroad, so as to keep pace with the growth of the country. It has been decided to have two general managers,—H. J. Horn to be general manager, in charge of maintenance and operation in Montana, North Dakota, Minnesota, and Wisconsin, with headquarters at St. Paul, as at present. Prior to graduation Horn did more or less engineering work in Minnesota, Iowa, and North Dakota. After graduation he was assistant engineer of maintenance of way on the Chicago Great Western from June, 1888, until March, 1889, when he began work with the Northern Pacific. He has been with that company ever since, holding various positions in the engineering and operating departments, including division superintendent, general manager of coal department, and since April 1, 1904, general manager. H. C. Nutt will be general manager in charge of maintenance and operation of the lines in Washington, Idaho, and Oregon, making his headquarters at Tacoma.—The following changes in address have been reported to the secretary: W. H. Gerrish, Commercial Twine Company, 542 W. 52d Street, New York City.—John E. Doak, Doak Gas Engine Company, Oakland, Cal.—G. C. Scales, 475 Centre Street, Newton, Mass.—C. L. Brown, 38 Wallace Street, West Somerville, Mass.—F. H. Adams, 54 Kent Street, Akron, Ohio.—G. L. Munn, Board

of Trade, Springfield, Mass.—James W. Loveland is now works manager for B. T. Babbitt, Incorporated, soap manufacturers. They will soon fully occupy their fine new plant at Babbitt, N.J. The present New York City office is 82 Washington Street.—G. U. G. Holman is now manager of the electrical department of the Boston branch of the H. W. Johns-Manville Company, with headquarters at 55 High Street, Boston.—Henry Forbes Bigelow will remain abroad until November 1.—Benjamin G. Buttolph, of Providence, R.I., writes in part as follows:—

Mrs. Buttolph and I had a delightful trip to the coast in May and June. On the way out we stopped at many points of interest. At Omaha I had a short chat with Tom Kimball. He is busy as ever. Mr. Secretary Root had invited him, as one of the eight paid architects chosen, to submit plans for the new Palace of Peace in Washington, D.C. At Denver we were entertained at luncheon by Mr. and Mrs. Frank Shepard ('87). He showed us about the Denver Engineering Works, of which he is president. They are growing, and already have a fine layout of the best machine tools. He and his partner are justly proud of their reputation in their line. In Oakland, Cal., I spent an evening with Russell M. Clement. His oldest boy, about fifteen, is an expert wireless student. I listened through apparatus devised by him to a message being sent by one of the coast stations. Clement was city engineer of Oakland for one or two terms, but is in private practice there now as a civil engineer. We enjoyed our visit to the various coast cities, particularly Seattle, the scene of Stone & Webster activities. I was interested in seeing their most modern power-house and car-houses, all of reinforced concrete throughout. . . . Edwin D. Pingree ('96) and myself are now the vice-presidents of the Manufacturers' Rhode Island Mechanics, State, Enterprise, and American Mutual Fire Insurance Companies, having been elected in June. John R. Freeman ('76) is president of these companies.

1889.

PROF. W. E. MOTT, *Sec.*, Mass. Inst. of Technology, Boston.

C. N. Borden, whose election as treasurer of the Richard Borden Manufacturing Company of Fall River, was recently noted, reports a quiet but busy life in that "burg."—Hollis French is at work upon

two water power plants and the equipment of three hospitals. He finds no signs of business depression in his line, and, despite a very busy summer, has found time to win several prizes with his yacht.—H. Howard is expected home from abroad about September 20.—W. W. Lewis has been busy for some time upon the problem of the reconstruction of the Haymarket Square approach to the Washington Street Subway. The shifting of the elevated trains from the present subway to the new one, without interrupting traffic, involves much study.—W. E. Mott gave a course of thirty lectures in theoretical hydraulics at the summer session of Columbia University, and during the remainder of the vacation has been engaged upon a study of the congestion of teaming traffic in the city of Boston, for the Boston Transit Commission.—E. E. Peirce, as the chief representative of the Massachusetts Board of Harbor and Land Commissioners, has recently completed, in conjunction with the Connecticut representative, the rerunning and marking of the Massachusetts-Connecticut boundary. One hundred and ninety-nine boundary stones were set.—The secretary is in receipt of cards announcing the marriage in New York, on August 20, of Mr. John Hall Rankin and Mrs. Charles Shepard.—W. B. Thurber is credibly reported to be adorning his Milton home with a reproduction of the hanging gardens of Babylon.—A. L. Williston was elected secretary of the Society for the Promotion of Engineering Education at the convention recently held in Cleveland.—Harrison Loring, Jr., reports that he is able to keep busy eight hours a day with the increased work of his company. According to latest advices the labor question, which has been the source of so much newspaper disturbance in the last six months, has quieted down, and we shall probably not hear from him again in that line for some time.

1890.

GEORGE L. GILMORE, *Sec.*, Lexington, Mass.

When Prince Wilhelm of Sweden was in Boston, on the trip to Nahant the party went down on Major Hayden's yacht.—F. P.

Royce, Jr., has been elected a director of the American Pneumatic Service Company.—The address of S. A. Morse is now Box 656, Sacramento, Cal.—Mr. and Mrs. G. N. Calkins have been spending the summer in Cambridge, where Calkins had easy access to the Oakley Country Club.—The address of A. W. Woodman is 909 Stock Exchange, Chicago.—We regret to report the death of Mrs. George Warren Fuller, who died on June 21.—Mr. and Mrs. Walter Ellis are now located at Ticknor Hill, Scituate, in their new home, "View the View."—The address of W. G. Curtis is 10 Grand View Avenue, Wollaston.—E. P. Whitten is at the Grand Hotel, Manila, Philippine Islands.—H. H. Pope is at 133 Essex Street, Providence, R.I.—Moses Lyman, Jr., is with the National Aluminum Works, Wellsville, N.Y.—The address of C. R. Nason is 20 Madison Street, Hartford, Conn.—Brokerage houses are commenting upon the magnificence of the New York offices of Hayden, Stone & Co. They are declared to be the finest brokerage rooms in New York, and this means in the world. All the fittings are of marble and mahogany. The offices occupy the whole of the Broad Street and Exchange Place wings of the ninth floor of Broad Exchange Building. There are fourteen separate rooms in addition to the customers' room and the clerks' quarters. The latter are in one big room, seventy-five feet square, behind grilled partitions. Gossip says these furnishings cost more than $100,000. The following extract is from the Boston *Transcript:*—

Centre Ossipee, N.H., September 23.—One man lost his life and another was saved only by the heroic work of a Massachusetts woman, who is camping at the lake, by the capsizing of a canoe on Ossipee Lake yesterday. Ernest Machado, an architect of Salem, Mass., who had a summer camp at Danforth Bay on the lake, and his nephew, Walter Osborne, also of Salem, started to paddle across the lake in a canoe. While a considerable distance from shore, the canoe capsized and both men were thrown into the water. Machado was almost immediately drowned. Osborne clung to the canoe and cried for help. The accident was apparently seen from the highway, and Mrs. Emma Whittemore, wife of Walter Whittemore of Wakefield, Mass., who has a summer home at Freedom, near the lake, and who was driving with her husband, jumped from her carriage and ran to

the water's edge. Here she found a boat, but no oars. Grabbing up a piece of board which lay near by, she struck out boldly for the lone figure clinging to the canoe far out in the lake. After a long struggle Mrs. Whittemore finally reached the canoe, and drew the almost exhausted youth into her boat. The return trip was made safely.

Mr. Machado was born in Manchester, June 30, 1868. He was graduated from the Salem High School and from the Institute of Technology. Many buildings in Boston and along the North Shore were built according to plans devised by him. He leaves a mother, Mrs. Elizabeth F. Machado, with whom he made his home at 5 Carpenter Street, Salem, and five sisters and a brother. He was an attendant of the South Congregational Church, Salem, and had offices in that city and in Boston.

1891.

HOWARD C. FORBES, *Sec.*, 88 Broad Street, Boston.

On June 30, 1907, Henry G. Bradlee became a partner in the firm of Stone & Webster, Boston, Mass.

1893.

FREDERIC H. FAY, *Sec.*, 60 City Hall, Boston.

On account of the transfer of the engineering offices of the American Telephone and Telegraph Company from Boston to New York, Grosvenor T. Blood, who has been connected with the engineering staff of the company for fourteen years, has moved to the latter city. Blood's new address is 15 Dey Street, New York City.—Samuel H. Brockunier, M. Am. Soc. M. E., formerly of the Kaaterskill Paving Brick Company, Catskill, N.Y., has been appointed manager of the Green Mountain Mining Company of Silverton, Col.—John R. Burke, for ten years assistant engineer of the Massachusetts Board of Harbor and Land Commissioners, Boston, has resigned to engage in contracting for dredging and river and harbor improvements. He will be located temporarily at 56 Lincoln Avenue,

Wollaston, Mass.—James A. Emery has resigned as vice-president and general manager of the Birmingham, (Alabama) Railway Light and Power Company, and with two others has organized the Emery Steel Company for the rolling of steel bars and the manufacture of spikes and steel specialties. The offices of the company are at 1004 Brown Marx Building, Birmingham, and their rolling mill and works at Gadston, Ala. Emery, accompanied by Mrs. Emery and their two daughters, visited his old home in Haverhill, Mass., in September.—Frank Houghton is cashier of the National Shawmut Bank of Boston.—Edmund I. Leeds is a member of the firm of Brainerd & Leeds, architects, which has recently designed and supervised the construction of the Ford Building, one of the handsomest office buildings in Boston, at the corner of Bowdoin Street and Ashburton Place, opposite the State House. The offices of the firm have been moved to the new building, Leeds's address being 15 Ashburton Place, Boston.—Robert Duncan Reynolds and Miss Fanny Louise Lawrence, daughter of Mr. and Mrs. George P. Lawrence of Sharon, Mass., were married on the 3d of October.—On October 1 Percy H. Thomas leaves the Westinghouse interests to join with Newitt J. Neall, M. I. T. 1900, consulting engineer of Boston, to form the firm of Thomas & Neall, electrical engineers, with offices at 52 Williams Street, New York, and 12 Pearl Street, Boston. The firm expects to do a general consulting work in electrical engineering, giving special attention to high tension transmission design, to the investigation of the difficulties in operation on high voltage plants, lightning protection, and extra high tension practice. After graduating from the Institute, Thomas entered the employ of the Westinghouse Company as a "student." His early work was an insulation of apparatus and on transformers, followed by a stay in Brazil in 1896–97, in connection with one of the early transmission plants. Later he spent some years in the investigation of static disturbances and lightning with special reference to the protection of commercial systems. Later, as chief electrician of the Cooper-Hewitt Electric Company, he carried on the practical development of the Cooper-Hewitt mercury vapor apparatus. Thomas has for some time been much interested in the American Institute of Electrical

Engineers, before which he has read a number of papers.—Samuel Payson Waldron and Miss Hariet Isabel Billington were married at East Orange, N.J., October 8.—The following changes of address have recently been received: George S. Barrows, 910 Grand Avenue, Kansas City, Mo.—Dr. Albert R. Beddall, 5319 Chestnut Street, Philadelphia, Pa.—Jacob Winn Brown, 85 Fifth Avenue, New York, N.Y.—Farley G. Clark, Fourth and Front Streets, Long Island City, N.Y.—William W. Cutler, 14 Fulton Street, Boston, Mass.—Edward J. Flynn, 28 State Street, Boston, Mass.—H. C. Foss, 120 Boylston Street, Boston, Mass.—Frank B. Holmes, Beech Street, Chelsea, Mass.—George M. Hooper, 4 St. Botolph Street, Boston, Mass.—Louis Levi, 610 American Building, Baltimore, Md.—Professor Emil Lorch, 909 East University Avenue, Ann Arbor, Mich.—Alfred C. Lotz, 1208 Rector Building, Chicago, Ill.—Professor Elizabeth S. Mason, 53 Crescent Street, Northampton, Mass.—George E. Merrill, 204 Prince George Street, Annapolis, Md.—George L. Mirick, 293 Washington Street, Boston, Mass.—Mrs. Edna Wadsworth Moody (Mrs. Herbert R. Moody), 23 Hamilton Terrace, New York, N.Y.—Arthur S. Pevear, 30 Kilby Street, Boston, Mass.—H. R. Sargent, 2 Rugby Road, Schenectady, N.Y.—James S. Wadsworth, 164 High Street, Boston, Mass.

1895.

H. K. BARROWS, *Acting Sec.*, 6 Beacon Street, Boston.

Changes of address are reported as follows: D. H. Thomas, Union Trust Building, Baltimore, Md.; J. R. Wells, 3 Wells Building, Quincy, Ill.; W. A. Wilson, 72 Magnolia Street, Boston, Mass.; M. M. Wheeler, Box 333, Central City, Ky.; Miss E. Wood, 36 Wellington Street, Waltham, Mass.; E. D. Barry, 5928 Walnut Street, Pittsburg, Pa.; F. W. Harris, 547 Garden Street, Little Falls, N.Y.; C. A. Phillips, Ashland Block, Chicago, Ill.; K. S. Harbaugh, 1306 Alaska Building, Seattle, Wash.; R. W. Carr, 123 Aubrey Street, San Antonio, Tex.; E. F. Smith, 8 James Street, Greenfield, Mass.; G. B. Welling, North Bennington, Vt.; G.

Carleton, Camden, Me.; H. K. Turner, Oak Hill, Newton Centre, Mass.; C. H. Parker, 39 Boylston Street, Boston, Mass.; A. E. Wheeler, B. & M. C. C. & S. M. Co., Great Falls, Minn.; H. P. Coddington, Harrison Building, Philadelphia, Pa.; A. J. Lynch, Post-office Building, Boston, Mass.; B. J. Clergue, Box 997, Sault Ste Marie, Ontario; A. C. Jones, American House, Boston, Mass.; F. C. Hatch, 123 Grant Avenue, Newton Centre, Mass.; Miss M. C. Brawley, 6 Sachem Street, Roxbury, Mass.; H. E. Davis, 1 Madison Avenue, New York City; H. E. Nelson, 633 Tremont Street, Boston, Mass.; P. H. Kemble, Enfield Street, Enfield, Conn. (permanent address Windsor Locks, Conn., for mail).—Notice has just been received of the death of William P. Sargent, of Boston, January, 1907.

1896.

E. S. MANSFIELD, *Sec.*, 39 Boylston Street, Boston.

The '96 Decennial Catalogue has finally made its appearance after many months of struggling, and it is left for each individual reader to judge of its merits and defects.—W. S. Leland was married on June 26, 1907, to Miss Saidee Watrous. They are now living in South Framingham, Mass.—At a recent meeting of the Electrochemical Society, George K. Burgess read a paper on "The Present State of the Art of High Temperature Measurements."—In a letter received from H. D. Jackson he includes the following description of his work:—

I have under way a factory building, which I have designed, and expect to supervise the execution and the installation of all the machinery. I also am investigating and hope to report on several shoe factories, a printing plant, and a textile machinery manufacturing company. In all of these plants I hope to be able to convince them that electrical apparatus is to their advantage, and to supervise the installation of the necessary motors, and possibly generators to furnish power to drive their machinery. I have also considerable prospect of acting as advisory engineer of a considerable sized plant in Mexico, this plant to generate power from a waterfall, trans-

mitted some distance, and utilize the power for the operation of a sugar mill and also an electric car line. They also propose to use electric motors in the ploughing of their fields.

—Word has been received that M. A. Sears and L. L. Lamborn have each recently welcomed a stranger into his home.—According to latest advices, Thanisch is now located in Mayer, Ariz.—C. E. Locke accompanied a summer school class of about ten on a three weeks' trip, visiting Baltimore, Harrisburg, Lebanon, Bethlehem, Hazleton, New York. Their investigations were along the line of the metallurgy of iron, steel, copper, zinc, and lead. Mr. Locke has also taken a business and pleasure trip through California, Eastern Canada, and Newfoundland, studying copper, asbestos, coal, and pyrites.—On September 25 an addition was made in the secretary's family by the advent of Edward Bancroft Mansfield.—The following is copied from the *Electrical World* of August 17:—

Mr. Theodore Inslee Jones has recently been appointed manager of the sales department of the United Electric Light and Power Company, of New York City. In this position he will have full charge of the sales end of the United Company's business, including all contracts for electric light, power, heat, and sign work, together with the company's advertising. Mr. Jones is an electrical engineer, graduating from the Massachusetts Institute of Technology in the class of 1896. Immediately after graduating, he took a position with the American Telephone and Telegraph Company in its New York office. In this position he identified himself with the work of the inspection and traffic departments, originating and equipping in connection with Assistant General Superintendent Brooks, of that company, the first school of instruction for employees engaged in telephone traffic, which has since become an important adjunct of all telephone companies' work. After four years' experience with the American Company, he took up similar duties with the New York and New Jersey Telephone Company in its New Jersey division, where he had charge of the traffic department. While engaged in this work, Mr. Jones prepared and delivered a course of lectures on telephone and electric light topics for the evening branch of the New York Board of Education, which he has continued each year up to the present time, last year giving two courses, one on telephone engineering and one on illuminating engineering. The early part of the present year

he accepted a position as illuminating engineer with the Nernst Lamp Company in its New York district, and when in this position was offered the managership of the sales department of the United Company, the duties of which position he is now entering upon. Mr. Jones is the author of a number of articles on electrical topics, among them being "A Study of the Efficiency of the Electric Light Plant of the Boston Public Library," "Notes and Suggestions for the Instruction of Employees engaged in Telephone Traffic," "The Progress of the Telephone" "Five Papers on Illuminating Engineering." The new sales manager will make his headquarters at the general offices of the United Company, 1170 Broadway.

1897.

JOHN A. COLLINS, Jr., *Sec.*, 74 Saunders Street, Lawrence, Mass.

W. H. Sellew, whom the secretary has been unable to locate for several years, has at last been found. He is principal assistant engineer with the Michigan, with headquarters at Detroit.—The secretary was pleased several months ago to see a number of the autographs of '97 men. This is the next best thing to seeing the men themselves. The document in question that bore the signatures was the subscription list to the stock of the *College World* that was to be issued in August. The secretary's copy must have gotten lost in the mails.

1898.

PROF. C.-E.-A. WINSLOW, *Sec.*, 157 Walnut St., Brookline, Mass.

Steffens is now at Johnson City, Tenn., as engineer of the Southern & Western Railroad.—F. A. Jones writes from Brookneal, Va., where he is engaged as division engineer of the Tidewater Railroad, that he has recently recovered from a six weeks' attack of typhoid.—Pratt came on from Columbus to Boston as a delegate to the September meeting of the New England Water Works Association. He is engaged, as engineer of the State Board of Health of Ohio, on an extensive study of the sewage disposal systems of the State.—

Dawes announced the birth of a daughter, Mary Bradley, on the 4th of July, 1907.—H. W. Jones, who was some time ago appointed a medical officer of the United States Army, writes:—

Have been stationed in Philippine Islands since January, '07, and have had much active service during the campaign in Samar against the Pulajanes. I have also been engaged in some exploring expeditions on the island. In the near future I expect to attempt the ascent and measurement of Mount Amanduing in Leyte, hitherto unascended by white men.

—Mark E. Tayor, of the Ordnance Office, War Department, was married during the summer to a Washington young lady. Sherman was married on Wednesday, September 11, at Bramwell, W. Va., to Miss Katharine Buck, daughter of Mr. and Mrs. Stuart Manwaring Buck. Mr. and Mrs. Sherman will live at 3 Auburn Court, Brookline, Mass.—Butcher has left the Massachusetts State Board of Health to take a position with the firm of Metcalf & Eddy, consulting sanitary engineers, 14 Beacon Street, Boston. He is at present engaged in working up municipal engineering data for the Boston Finance Commission.—A Boston paper reports the death in California of G. F. Ulmer on Aug. 29, 1907. If this report is confirmed, the class has lost one of its best comrades and the Institute one of its ablest and most promising graduates.

1899.

HERVEY J. SKINNER, *Sec.*, 93 Broad Street, Boston.

Harry L. Morse has been promoted to First Lieutenant of Artillery, and is stationed at Fort McKinley, Portland, Me.—George Heckle was in Boston the middle of September. He is a consulting engineer in Kansas City, Mo.—Lewis Wetmore Riddle was married to Miss Elizabeth Fuller Emmons, September 5, at Northboro, Mass. They will be at home after November 1, at 4635 Ellis Avenue, Chicago.—Herbert H. Riddle, who is an architect in Chicago, was in town the early part of September, and

spent a few days at the Somerset. His Chicago office is 1541 National Bank Building.—James A. Patch is the proud possessor of a second child in his far-away home in Syria.—George C. Winslow is doing inspection work in Detroit on the new tunnel for the Michigan Central R.R., now being built under the Detroit River.—J. A. Stetson is with the Portland Railway Light and Power Company, Portland, Ore.—Sherrill has been appointed assistant professor of theoretical chemistry at the Institute, and will relieve Dr. Noyes, who has been made Acting President, of a large part of his work in theoretical chemistry.

1901.

ROBERT L. WILLIAMS, *Sec.*, 30 Waban Hill Road, Chestnut Hill, Mass.

With this writing for the REVIEW, the secretary is to resign in favor of Robert L. Williams (II.), to whom all future class communications should be addressed. This resignation was necessitated by the secretary's removal to New York, where he is now employed by the Board of Water Supply of that city, 299 Broadway. It is with much regret that the secretary finds it necessary to give up the class work, which he found very enjoyable when time was available. He wishes to extend his thanks to the class for their cordial response to his last circular, and, lastly, he wishes to commend to the class the incoming secretary. Give him all the support and information you can, and he will do his part to keep the class wide-awake. The secretary has come into touch with very few '01 men this summer. He rubbed up against C. A. Whittemore, who was remodelling a building under C. H. Blackall, architect, while the secretary was working on the substructure for the Boston Transit Commission.—F. A. Colby (IV.) and H. T. Blanchard are with Carrère & Hastings, Blanchard now being engaged as resident architect on the construction of a hospital in Palmerton, Pa.—E. F. Lawrence (IV.) reports that he and his associates in Portland, Ore., are completing plans for a $400,000 Young Men's Christian Asso-

ciation and Young Women's Christian Association building, and have just closed bids for a steel foundry plant consisting of some six or eight buildings. He is as enthusiastic as ever about the North-west, and thinks there is room for more Tech men there.—William J. Sayward (IV.) starts this week on a four months' trip in Europe, after which he expects to set up business out in Seattle with an associate architect.—Puckey is established in Wilkes-Barre, Pa.—Among Course I. men, Whitman has left the Panama Canal Commission, and has entered the navy as assistant civil engineer. He passed the examination some two years ago, but could not then be appointed on account of his eyes. These have since improved so that he was able to qualify, and he is now stationed at the League Island Navy Yard, Philadelphia. The navy is to be congratulated as well as Whitman, and I am sure the class wishes him every success in his chosen field.—L. P. Wood (I.) was married on August 27 to Miss Mabelle Faville Allen, of Milwaukee. Both parties were loyal friends of Tech and strongly anti-merger in their sympathies; yet they have united their futures, and we wish them the fullest happiness.—Ralph S. Loring (I.) was married on September 4, to Miss Linnie Marie Hubbell, of Milford, Mich.—Langdon Pearse and Wilfred DeBerard (XI.) are out with the People's Water Company, Oakland, Cal.—Among the miners Arnold is owner and operator of the "Omo Jacks" lead and zinc mines at Joplin, Mo., and is certainly making good.—A. J. Eveland is still at Manila as consulting mining engineer and general manager of the Eastern Mining Company.—Baxter is now in Mina, Nev., with McKay & Baxter.—It is with deep regret that the secretary records another fatality in our class, that of Arthur H. Birks (IV.), who was killed in the fall of the Quebec Bridge on Aug. 29, 1907. Mr. Birks was born in 1879 in Peoria, Ill. He studied for one year at Princeton, and then came to M. I. T., joining the class of 1901 in the sophomore year. He graduated with the class of 1901 in Course IV., and, after working through the summer with the Eastern Bridge & Structural Company of Worcester, went back to Tech for a post-graduate year. Leaving Tech in June, 1902, he entered the employ of the Phœnix Bridge Company, where he

remained till his death. After a short time spent as draftsman, he was transferred to the erection department. There he worked partly in the field on erection and partly on designs for erection. Among other works he helped to make the designs for the erection of the great Quebec Bridge, and for the last two or three years has been resident engineer on the erection of that structure. This was a responsible position, and it is the testimony of his superiors that he did his work with the utmost fidelity. He was on his regular tour of inspection toward the close of work on August 29, when the catastrophe occurred, and he was carried down with the bridge. His body was recovered a few days later. Birks had won the confidence of his employers by his skill and judgment, and the respect of his associates by his noble character and personal tact. The Institute and our class have lost one of their most promising members, and will feel the keenest sorrow for the untimely death of our friend. Mr. Birks was an associate member of the American Society of Civil Engineers. RALPH H. STEARNS, *Ex-Sec.*

1902.

F. H. HUNTER, *Sec.*, 75 Park Street, West Roxbury, Mass.

Since the last REVIEW went to press, work on the Second Record Book of the Class of 1902 has been pushed steadily. Circulars and reply blanks were mailed in August, and a large number of replies are in. With the help of some members, and through other sources, the secretary has been able to get in touch with several men whose addresses have long been missing from our rolls. Unfortunately, a number of men have neglected to reply as yet, and a *hurry-up* call is being circulated. Statistics are being compiled, and other matter prepared for the press. All matter must reach the secretary by November 15, and the book will be issued as soon after as possible, probably soon after January 1. With the aid of the reply blanks in hand it would be possible to fill a large part of this issue of the REVIEW, but only what is most recent is here given. The fall "crop" of weddings includes the following of our classmates: A. A.

Jackson was married on September 5 to Miss Louise Annie Salfisberg, of Dorchester, Mass. They will be at home after November 1 at 5220 Indiana Avenue, Chicago.—On September 14 Greeley married Miss Marjory Ellen Houghton. The wedding took place in the Hancock Church, Lexington, Mass. R. V. B. Blaisdell, '02, was one of the ushers. J. W. Smith and Hunter were the other members of the class on hand.—Arthur Sawyer was married in Chicago on September 30 to Miss Grace Frances Barrett. They will make their home at Delaware Mine, Mich., where Sawyer has been for some time.—Recent changes among our mates are: B. G. Philbrick is sanitary bacteriologist for the People's Water Company of Oakland, Cal., his address being 1014 Broadway.—Townsend is now with the Dominion Bridge Company of La Chine, P. Q.—Haskell has returned to Boston, and is now chemist for H. P. Hood & Sons of 494 Rutherford Avenue, Charlestown, the well-known milk contractors.—Avery is still with the New York Central, but has been shifted to Watertown, N.Y. His address is 24 Emerson Place.—Ned Baker, Vatter, and Swan are among the A. T. & T. Co. men expecting transfer from Boston to New York in the change of headquarters by that concern.—Miss Bates is teaching cooking in the New York City public schools.—Norman E. Borden, Jr., will celebrate his birthdays on the 31st of July, dating from 1907.—George Moody Worden is four days older.—Farmer has returned to Nashua, N.H., with the Boston & Maine Railroad.—Emilio Madero is at San Pedro, Coahuila, Mexico, where he has interests in mining and other industries.—Manley has been in Boston this summer on general civil engineering work.—Manning is now with Stone & Webster in their Boston offices.—L. E. Moore is assistant professor of civil engineering at Massachusetts Institute of Technology. He is the first '02 man in the Tech Faculty.—Patch is now at the Charlestown (Mass.) Navy Yard, in the department of construction and repair.—Redfield is studying in Paris. Care American Express Company, 11 Rue Scribe.—Robert White was recently chosen president of the United States Ozocerite Company, of which he was formerly sales manager. His office is 503 Rector Building, Chicago.

1903.

W. H. Adams, *Sec.*, Polytechnic Institute, Brooklyn, N.Y.

Two more members of the class have gone into business for themselves, as the following announcements will show. Edward Ely Hoxie and Alexander J. Scholtes announce that they have formed a copartnership for architectural work at 622 Berkeley Building, 420 Boylston Street, Boston, Mass.—The undersigned announce that they have consolidated the business heretofore known as D. C. Picard, consulting chemist, and the Cotton Seed Products Laboratory, respectively, and have formed a copartnership to conduct a general consulting and analytical chemical business under the firm name of Picard & Law, with offices and laboratory at 231½ Marietta Street, Atlanta, Ga. (Signed) D. C. Picard and Thos. C. Law.—F. G. Cox has returned to New York from England, and may be addressed 17 Battery Place, New York, care of Otis Elevator Company.—C. Frank Sammet has a position in Washington, D.C., with the Bureau of Chemistry, department of agriculture.—The class family is still increasing. Cushman announces the arrival of Master Allerton R. Cushman on Feb. 10, 1907.—Gleason has returned to the Green Economizer Company in Boston.—While on his vacation, the secretary saw Olmstead and Nutter, who, together with Newman, are working on a new constitution. They have finished the constitution, and are now considering the method of submission to the class for approval or disapproval. The annual report has been held up in order to send it out with the new constitution.—The secretary has received a letter of thanks from Hayden, to whom was sent the class baby cup the first of the year. The letter will be published in the class book.

1904.

Currier Lang, *Sec.*, Michigan Central Depot, Detroit, Mich.

George M. Magee and Henry W. Rowe recently formed a partnership for the practice of architecture under the firm name of

Magee & Rowe at 611 Compton Building, 161 Devonshire Street, Boston.—Walter J. Gill, Jr., has removed from Boston to Washington as assistant examiner in the United States Patent Office.

1905.

GROSVENOR D'W. MARCY, *Sec.*, 246 Summer Street, Boston.

The vacation season brought quite a number of '05 men back to Boston. Some of these looked up the secretary, some he looked up, and some he butted into by sheer luck. The Boston Club, '05, kept up its gatherings at the Technology Club, on the second Tuesday evening of each month, with an average attendance of ten. '05 men coming home, remember the date. Some of the fellows who did not come home wrote, and the following items have been accumulated: A. F. Belding is with the Sullivan Machine Company at Joplin, Mo., and writes that it is the liveliest little town he ever got into. While mining is the principal industry, it is not at all a mining town, but a regular city of forty or forty-five thousand inhabitants and a great little burg. (Artie must be on the Old Home Week Committee.)—J. H. Brown, Jr., is with the Sullivan Machine Company in their New York office. He leaves shortly on a trip of a couple of months to Panama, where this company has considerable machinery installed.—R. N. Turner graduated last June from the Boston University Law School. He has been admitted to the bar, and is now in Homer Albers' law office.—Ros Davis writes to call attention to an error in the previous issue of the REVIEW. The Singer Manufacturing Company is located at Elizabethport, N.J., not Newark. He says that news gives that town a wide berth, and concludes, "Oh, I forgot—I am not married yet." Will it be soon, Ros?—W. K. Lewis, who has been studying at Breslau, Germany, spent his vacation in Finland.—E. W. Wiggins has been transferred from the Wisconsin plant of the Eastern Dynamite Company to their works at Landing, N.J. He is engaged to a Miss Marcy (Wellesley, '07).—Dan Harrington is with the Eastern Dynamite

Company at Barksdale, Wis.—Norman Lombard has been admitted to the bar of Missouri. He is practising mechanical engineering, specializing in Portland cement.—A. G. Prescott has left the Whitlock Coil Pipe Company to take a position as inspector with the New England Bureau of United Inspection. His headquarters are at Boston.—H. W. Kenway, F. W. Guibord, and W. W. Ammen were moved up from fourth assistant to third assistant examiners in the last promotions at the Patent Office.—Ammen was married on September 7 to Miss Lura Clarinda Bates at the home of the bride in Washington.—Gorman Crosby was admitted to the Washington bar last July. He has since left the Patent Office to take a good position with Kenyon & Kenyon, patent attorneys, 51 Wall Street, New York.—George B. Jones spent his vacation from the Patent Office in studying law at the University of Chicago. This would seem hard lines to some of us, but appears to be nuts for George. He will return as a Senior in the evening school at George Washington University.—H. F. Gammons was married in July. He is examiner in the class of aërial navigation, which has recently become quite active since the Wright Brothers patented their machine. He is a Sophomore at the National Law School.—Paul A. Blair is engaged to Miss Ruth Brown, of Washington. He was admitted to the Washington bar last July, and is in charge of the Washington office of Howson & Howson.—Ralph R. Patch was married to Miss Christina V. Johonnott, of Stoneham, in August. Harry Nabstedt was best man, and R. S. Gardner one of the ushers. Patch is with the E. L. Patch Company, manufacturing chemists, of Stoneham, Mass.—The secretary received an announcement of the wedding of John W. Taylor to Miss Cora Graf on September 9 at Cincinnati. They will live at Massillon, Ohio.—Ned Jewett writes, "I beg to report that on the eighth day of August, in the year of our Lord nineteen hundred and seven, at 7 A.M., was born to Elise and T. E. Jewett a little daughter, Margaret." Ned has been busy this summer erecting concrete grain elevators through the State of Kentucky. He concludes, "The great reunion is fast drawing near, and I am glad the baby will not be old enough to appreciate her papa's actions at that time, for I have a feeling there

will be something doing."—C. R. Prichard writes from Beverly that on July 25 they were made very happy by the arrival of a little boy, weighing nine and one-half pounds, to be named Charles Rollins, Jr.—Charles E. Freeman was married on September 6 to Ethel Vaughn Davis at Somerville. They will live at 437 Navy Place, N.W., Washington, D.C.—On June 15 Miss Edith Z. Ellis (Smith, '06), of Lynn, announced at a small luncheon at Northampton her engagement to H. A. Wentworth.—The engagement of G. B. Perkins and Miss Mary Wardwell, of Salem, was announced October 2.—R. S. Gardner has left the General Electric Company to come back to the Institute as assistant in the Mechanical Engineering Laboratory.—G. B. Parsons is in Boston again, and reports the following items about '05 men with the Stone & Webster Company: The Terre Haute Traction and Light Company, where he was assistant to the manager, has been sold by the Stone & Webster Company, and he is awaiting another assignment. E. T. Steel has been promoted to assistant superintendent of lighting in the Ponce Railway and Lighting Company, Ponce, Porto Rico.—Walter Munroe is with the Dallas Electric Light and Power Company.—R. M. Harding is with the Savannah Electric Company.—Warren W. Loomis has been promoted from purchasing agent to the position of assistant to manager of the Dallas Electric Lighting and Power Company.—R. F. Gale is with the Stone & Webster Company on electrical work in Taunton.—Selskar Gunn is again lecturer in biology at the Iowa State University, and is also State biologist. During the summer he made a trip to England.—C. H. Clapp, who has been instructor in the North Dakota School of Mines, has been East during the month of August.—W. D. B. Motter made a short trip north from Mexico, and spent two weeks in September at Kennebunkport, Me.—W. L. Spalding reports that E. C. Weaver passed through Buffalo on his way to California, where he will work on railroad construction. He said Shorty had some awful alligator yarns and weird accounts of life in the wilds of Florida.—Carl E. Danforth was married on August 28 to Miss Carrie M. Goodale. They will live in Bangor, Me., where Danforth's business is located.—Joe Daniels has returned from Glace

Bay to continue teaching in the Mining Department of Lehigh University.—B. L. Johnson is with the United States Geological Survey in Wyoming, where the Survey is working up a coal formation.—Lee Faulkner Goldthwaite, midshipman on the United States battleship "Georgia," was killed in performance of duty on July 15 by a powder explosion in a turret of the above hip during target practice. Goldthwaite left the Institute during his Sophomore year, to take an appointment from his home State, Kentucky, to the Naval Academy at Annapolis. He graduated last June, and was on his first cruise when the accident occurred.

1906.

THOMAS L. HINCKLEY, *Sec.*, 745 Osceola Avenue, St. Paul, Minn.
A. T. HEYWOOD, *Rec. Sec.*, Mass. Inst. of Technology, Boston.

It becomes the very joyful duty of the secretaries to announce, as a fitting preface to the usual notices of "comings in and goings out," the marriages of our dearly beloved brethren Hermann C. Henrici and Clarence F. Powell, lately of Courses II. and VI., respectively. The former of these model young men has confessed in a letter, of which an extract may be seen later on, that the prospect of having to spend next winter alone amid the raging blizzards of Kansas was a factor in the happy event in his case, and that on the 19th of January last he did the deed. We have not the particulars in the case of brother Powell, but hope that they will soon be forthcoming. These events are coming to be so popular that they no longer cause the wild excitement that used to accompany their announcement. That is far from saying that we have ceased to feel a most vivid interest in them, however. In the name of their 269 single classmates we wish "the best ever" to Mr. Henrici and Mr. Powell, and sincerely hope that they may both "live long and prosper." Rah for '06!—Some of the faithful may wonder what is the upshot of the change in our organization recorded in the July issue of this REVIEW. As it has been vacation time, no ballots have been as yet

prepared. We hope soon to have them on their way, nevertheless, and urge our classmates to give them careful attention. Men at a distance from dear old Boston can render themselves a pleasure and the 'Stute a service by organizing an '06 branch society, and then letting the world know about it in a decent way. There is not nearly enough advertisement given our school in localities where such notice is most needed,—for example, in the Middle West, where the only Eastern scientific school with a real solid backing is Cornell, whose graduates are not afraid to be seen and heard and whose methods are more in keeping with the customs of that section than are those of M. I. T.'s favorite sons. This is not merely a "filler": it represents the opinions of several of our own graduates who are at present located in the Middle West, and is a real live issue. Don't let us be behind hand in a legitimate campaign of publicity. Hoist the cardinal and gray, and let the other fellows see what a good thing it stands for.—Merely to see what sort of results they would bring, the secretaries sent a few reply-postal cards around to some of the fellows. While there wasn't much space to reply in, we found that what was said generally was to the point, and this method has the advantage of equally dividing the work between the man addressed and the despairing scribe. We print some of the replies. H. C. Henrici: "It's did (see details in letter). I can't say anything for the REVIEW, it speaks for itself. I am looking forward to the next issue with great interest, to see where the boys have all gone to. For from the enormous (?) number of letters I have received they must have vanished or moved to Africa."—E. D. A. Frank (replying categorically): "Nothing is the matter. No, I am not dead." We desire to add to this that we ourselves had the honor of recently visiting the gentleman in his own fastness, Milwaukee, and can confirm both statements. We were "personally conducted" for the greater portion of a day, on foot, over about 'steen dozen square miles of Wisconsin soil at a velocity which would make a Boston street-car sick with envy. Edwin is still with the Allis-Chalmers Company, and has had a varied experience on outside jobs.—C. A. Farwell: "I'm still fat and lazy, although I haven't seen a Tech man for months. I've got a couple of classmates up

the Yellowstone that I am going to see shortly. Great sport out here, hunting prairie chickens on horseback. Am not saying anything about my luck."—G. R. Guernsey: "Farwell is doing detail work in the office on structures for the Trenton Project, Buford, N.D., about 50 miles north-east of here down the Yellowstone. Lincoln was at the Newlon camp for four months as earthwork inspector on the Lower Yellowstone Project, but was recently transferred up here to La Mesa. He is inspecting on a large earth fill. There are four Tech men here now: Mr. Paul, the construction engineer, Morse, Lincoln, and myself. I am inspecting on reinforced concrete."—A. W. Hertz: "My health is good, and I am getting along first-rate as an architectural draftsman. Wilson, '04, is in the same office with me. Saw Jimmie Root a few weeks ago on his way out to Mexico." (Al. is still in Kansas City.)—H. W. Harvey: "Still at the same place. Like it O. K. Am living at 113 Oak Street, Weehawken. Kennedy (II.), is living with me. Not married as yet, but possibly in a year or two."—C. S. Peirce: "Am getting along famously. Wish I could hear more about you fellows,—Bart. and the rest. With the C. & N. W. Railway, as usual, on second track work. Also new 20-mile yard."—Willis Ranney: "Your long (?) letter received, and in reply would state that I am working for the Chicago Great Western Railway on concrete construction. Learning the business from the bottom up."—Strange as it may seem, we find that real interesting letters come somewhat easier than they used to, and some have actually arrived without any warning. We take it as a good sign, and suppose that, now the fellows have got started in life, they are feeling better, and can afford to push the pen in spare hours. May the good work go on. We submit a few samples to prove that we are right. E. M. Eliot writes, among other things: "Have been doing a lot of drafting work here. It was mostly civil engineering. Applied stood me in good stead, and I coached up on Gurley, bought a Kent, a Kidder, and a Thompson's 'Concrete.' Also dug up a Carnegie, so that I was soon able to tackle their jobs. Have been doing most of the mapping, a couple of roof trusses, which took a good deal of time, and considerable miscellaneous steel work. Have been almost

entirely relieved of correction work, which is a good thing. . . . The civil engineering course got one fall out of me on the subject of rivet spacing." Since this was received, Ed has gone to Seattle, Wash., where better opportunities presented themselves. A brief note apprises us of the fact that he is "back laboring in overalls once more, eleven hours a day." Eliot's new address is 554 Harrison Street, Seattle.—W. G. Waldo, who is with the Detroit River Tunnels Company, at Windsor, Ont., says he will never cast aspersions on the Sanitary option again. Of the tunnel work he humorously says:—

At the present stage of the game the Detroit River Tunnel makes the average sewer seem a delightful place to work in. . . . Did you ever, in the course of your adventures, meet with a curious substance that looks like cotton wool and feels like whipped cream, having a compressive strength closely equal to that of a dish of charlotte russe? Perhaps you have, but anyway you ought to come up and see the kind that grows luxuriously throughout the tunnel. The sensation of squeezing a handful can be compared only to that of compressing a handful of large, fat caterpillars beyond the elastic limit. Then there are the dogs. Do you know the definition of the technical term "dog"? Probably not, so let us assume that you are down in the tunnel, with a candle stuck fast to the brim of your hat, and are dodging along among the countless struts, on your way to the shaft and supper. Suddenly, without warning, your toe strikes a concealed hump of soft mud which has oozed in through some crack, and down you go into as choice a mud bath as could be procured at Carlsbad for many sous. You have stepped into a "dog," that's all. . . . Bartlett is in the Windsor field office, where he has a desk, while I am drafting in the main office over the river. Thus it happens that, while we are both working for the tunnel company, neither of us has much to do with the tunnel itself, at least at present. Both of us expect to be put upon outdoor work in the near future.

—C. T. Bartlett has been at Windsor since July, and, to judge from many brief communications, is finding the work very agreeable.—H. C. Henrici has the following interesting news to impart:—

I am buried in the heart of Kansas, at Sabetha in Nehama County. Sabetha is a town of about 2,100, and is strictly a farming community. Bern

and Oneida are the two other towns which, with Sabetha, comprise my district. They are also farming towns, and, indeed, these telephone exchanges are made up of about 60 per cent. rural telephones. My district extends about 25 miles north and south, and about 18 miles "at right angles to it," including in the three towns about 1,000 subscribers. . . . The people are very sociable, and we have enjoyed ourselves very much, notwithstanding the fact that we have gone through three telephone "wars" since I have come here. . . . When I was first sent out, I was here for about a week alone, but the prospect of having to stay alone during a lot of trouble was too much of a proposition, and I returned on the 18th of January, and persuaded my wife to marry me the next evening, although we had already planned a big wedding for some future date. We were married on the 19th at my wife's home, with just a few friends present, and left for Sabetha on the 20th. . . . I heard from Clarence Powell the other day. He is also married, and claims he is having a better time than I am; but I do not think that is possible, even though he is living in Philadelphia. Clarence is still with the Bell Telephone Company in the equipment department. . . . Dean is in the traffic department of the same company, and A. C. Taylor is still with the Gas Company, as service foreman for West Philadelphia. . . . Burt Terrell wrote me some time ago that he had successfully passed the Civil Service exams for Heating and Ventilating, and is now at Washington, living about two doors from the German embassy. I always knew that '06 men would soon be famous. I never hear very much of the boys in the West, for I do not get to Kansas City often enough to talk with those that are there. Alfred Hertz is working for Mr. Charles A. Smith, and, when I saw him last, was engaged on a design for a high-school building being constructed by the Board of Education. . . . Ira Woodbury passed through here twice during the past year, travelling in the capacity of secretary of a large shoe manufacturing concern.

—G. C. Simpson is still with the Eastern Expanded Metal Company, in Boston, and from last accounts all is going well. Simpson reports a fleeting vision of Benham in the Modern Athens, but no particulars. The secretaries verily believe that they would drop dead if an '06 man were to take the trouble actually to hunt them up without his business bringing him that way. "Small Favors Thankfully Received" is still the motto over our respective pigeon-holes for Class Notes.—In reply to S. P. Newton's inquiry in our last issue we

beg to state that Fred Moore is located in Columbus, Ohio, in the accounting department of the Pennsylvania Railroad, Indianapolis Division of P. C. C. & St. L. Railway.—The very latest! Extra—Ex! News has just been received at headquarters that brother Ralph Jackson has set the date for his capitulation. The announcement reads:—

Mr. and Mrs. Foster Meserole Rhodes request the honour of your presence at the marriage of their daughter, Elizabeth Meserole, to Mr. Ralph Templeton Cushman Jackson, on the afternoon of Wednesday the sixteenth of October, at four o'clock. Saint Bartholomew's Church, Brooklyn, New York.

Mr. and Mrs. Jackson will be at home after November 1 at 57 Oak Square Avenue, Brighton, Mass. Well done, Jack! Our official phrases of congratulation are exhausted, so we simply join with the others, and wish Mr. and Mrs. Jackson long life and prosperity.

1907.

ALEXANDER MACOMBER, *Sec.*, 83 Newbury Street, Boston.

I. *On the Part of the Secretary.*—The campaign for keeping track of the newest alumni began with the sending out of the following circular letter:—

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

CLASS OF 1907

Now that our class has joined the ranks of Alumni, it becomes the duty of every one of us to keep in touch with the class organization and endeavor to do his share in maintaining Alumni enthusiasm and interest, for the strength of any institution depends on the loyalty of its Alumni. 1907 has always been a loyal class and will keep its record.

The Class Secretary intends to keep in touch with every man,—not only those who have been with us during our entire course, but those who have been connected with the class for shorter periods. This means nearly four hundred men, and it is no small undertaking. To this end all are urged to communicate with their Secretary, advising him of matters of interest in their lives, their business prospects, changes of position, address, etc.

While the Secretary will endeavor to correspond personally with the class, it will be realized that this is impossible to any great degree and the main channel must be through some publi-

cation which all may receive. The TECHNOLOGY REVIEW admirably fulfils this requirement, and all are urged to subscribe for it. The subscription is only one dollar a year, and should be sent to the TECHNOLOGY REVIEW, 83 Newbury Street, Boston. All Institute affairs are here chronicled, and a list of members of the class will be published in each issue, with their addresses and notes of interest regarding the men.

Do not fail to take this opportunity to keep in touch with your class and Alma Mater. Remember that there are some who are giving their time and energies to this work,—the least that you can do is to give us your support. Do not fail to fill out the attached blank and mail to your Secretary. DO IT NOW. Then you won't forget. Accompany it with a few words of your own work and any matters of interest regarding other members of the class. The first class notes, with the news of the fellows and the report of the Class Day Committee, will be published in the October number of the REVIEW. Subscribe now.

Please do your share and send the attached blank to your Secretary and show your loyalty to 1907 and your college.

ALEXANDER MACOMBER, *Graduate Secretary*,
83 NEWBURY STREET, BOSTON, MASS.

August, 1907.

Name.....

Address (mailing).....

Business (firm and address).....

Have you subscribed to the REVIEW?.....

Fill out the above and return to

ALEXANDER MACOMBER, *Secretary*,
83 NEWBURY STREET, BOSTON.

Your secretary was unable to send out the above letter before, as he did not receive the list of addresses from the Institute until the latter part of August. Inasmuch as these were home addresses, it will take some time to get returns, and so we hope to have more complete news in the January REVIEW.

Since our Freshman year there have been 577 persons connected with 1907. The present mailing list of the class consists of the graduates (208) and all who have been connected with us since the Sophomore year, in all 325. On this basis the secretary sent out 325 circular letters. It is hoped the fellows will respond

promptly, and enable us to maintain a strong organization. In this respect men are urged to look up the Technology Clubs and Associations in their particular part of the country. They are everywhere, and addresses are given in the catalogues and in the REVIEW. Look up other Tech men, and develop that *esprit de corps* which is such a strong factor in the success of our institution. Again, our men are scattered all over the country, and must become acquainted with young fellows who are looking for the education the Institute gives. Use your influence to bring them to Tech, and so actively assist in the work for our college.

It is a pleasure to announce that the labors of the Class Day Committee have resulted very favorably. Following is the general report:—

TREASURER'S REPORT.

Spread	$202.00
Concert	18.00
Alumni Reception	17.80
Class Dinner	350.00
Orchestra	50.00
Class Gift	184.90
Printing and engraving	229.25
Floral decorations	186.75
Miscellaneous expenses	34.80
Deficit on Dance	18.25
Total expenses	$1,281.75

Receipts.

Received from Class Day assessments and Class Dinner tickets		$1,426.00
Total receipts	1,426.00	
Total expenses	1,281.75	
Balance	$144.25	
Interest	.77	
In treasury	$145.02	

(Signed) E. H. PACKARD, *Treasurer.*

AUDITOR'S REPORT.

We have examined the accounts of the treasurer, as herein given, and find them to be correct.

(Signed.) ALEXANDER MACOMBER, *Chairman*,
WILLIAM L. WOODWARD,
HUDSON B. HASTINGS,
Auditing Committee.

II. *Personal Notes.*—1907 is certainly holding its record as a banner class in some respects. The secretary has received word of five marriages since June. John H. Leavell married Miss Rebecah Doble, of Quincy, Mass., June 10. Several of us were on hand to give our Texan a good send-off, but "Stud" fooled us, as usual. Stud is a very fortunate man. May we all be as much so when the time comes! He and his bride have spent the summer in Europe.—Oscar Starkweather married Miss Margaret L. Mitchell, of Needham, Mass., September 18. The wedding was held in the First Baptist Church of Needham. Several 1907 men were present to witness Stark's downfall. We all of us wish him great happiness. Stark and his bride plan to go West this fall.—P. R. Nichols married Miss Mildred Wood, of Bournedale, Mass., on June 20. Their home will be at 23 Pleasant Street, Stoneham, Mass. The other two Benedicks are Kenneth Moller and K. W. Dyer, who were married in July.

Our class will be well represented on the instructing staff next year, the following men returning as assistants: civil engineering, C. E. Allen, Alvord, J. M. Barker, Cullimore, Conron, Garratt, C. D. Howe, H. B. Hastings; mechanical engineering, R. S. Gardner, C. A. Eaton, J. J. Thomas, Bryant Nichols, Kenneth Moller, W. W. Bigelow; chemistry, C. R. Bragdon, G. F. White, F. B. Shields, H. W. Mahr, O. L. Peabody, W. B. Gonder, R. G. Woodbridge; electrical engineering, R. G. Hudson; naval architecture, A. H. Jansson, H. S. Wonson.

Following are notes concerning those heard from, or of, up to date. All others will have to be reached through their home addresses

which may be found in *Technique* or by application to the secretary. As soon as they are heard from their notes will be published. Bob Albro is with the Metropolitan Water Board at Clinton, Mass.—Charlie Allen has been with the American Bridge Company this summer, but comes back as an assistant.—Laurie Allen is with Horton & Hemenway, builders, and is at Providence, R.I., address 128 Broad Street.—A. B. Arnold is with the American Agricultural Chemical Company, 92 State Street, Boston.—R. C. Ashenden (*ex* '07) is with the Boston & Albany Railroad at Chatham, N.Y.—Bachmann is in the United States Patent Office, address 1116 New York Avenue, N.W., Washington, D.C.—C. F. Baker is with G. H. Ingraham, Architect, address 43 Chestnut Street, Boston.—J. M. Baker is with the Illinois Steel Company, Chicago.—A. F. Bancroft (*ex* '07) is with Warren Brothers, 93 Federal Street, Boston.—Jimmie Barker returns as assistant in Civil Engineering, as does Bigelow.—A. S. Black (*ex* '07) is with Baker, Geer, & Ingalls, 341 Union Street, Lynn, Mass.—J. C. Bradley, is with the Coe Brass Manufacturing Company, 74 Litchfield Street, Torrington, Conn. He writes that he is already at home in their chemical laboratory.—L. C. Brock expects to return as Young Men's Christian Association college secretary, and also to do graduate work in electrical engineering.—Harry Burhans is working for the Burhans & Black Company, Syracuse, N.Y.—A. L. Burwell is experimental chemist with S. M. Bixby & Co., makers of shoe polishes, address 30 7th Avenue, New York City.—J. P. Chadwick is with the Tennessee Copper Company, Copperhill, Polk County, Tenn.—E. L. Chaffee takes up graduate work in Harvard this fall in line for a Ph.D. His engagement is announced to Miss Dora L. Armes, of Lexington, Mass., Mt. Holyoke '06. Chaffee, however, expects to change that name before long. Good luck, old man!—H. R. Chase is with the American Bridge Company, New York City, address 481 Bedford Avenue, Brooklyn, N.Y.—A. O. Christensen is at Calumet, Mich.—Charlie Coffin is with the Board of Water Supply, Jamaica (L.I.), N.Y.—G. A. Crane is at Tucson, Ariz., with the Southern Pacific Railway.—R. H. Crosby is with the Western Electric Company, Chicago, address 75 Park Avenue.—P. T.

Cummings is with James Purdon, architect, 8 Beacon Street, Boston.—Carrol Dean takes up the apprentice course with the Westinghouse Company at Pittsburg.—V. H. Dickson is with Clay Belsley, mechanical engineer, 219 Masonic Temple, Peoria, Ill.—Parker Dodge is with Gifford Wood Company, 729 Warren Street, Hudson, N.Y.—S. J. Eagan writes that he expects to go with the Moran Shipbuilding Company, Seattle, Wash.—Emilio is in Globe, Ariz.—John Evans's address is 1300 South 14th Street, Denver, Colo. John appears to be taking life easy at present. —J. T. Fallon is with Hinchman, Pilot & Tooker, 52 Broadway, New York City.—H. P. Farington, is with Holbrook, Cabot & Rollins Corporation, 6 Beacon Street, Boston.—C. S. Fleming, Jr., is with Proctor & Gamble Company, Ivorydale, Ohio.—F. C. Elder will take graduate work at Tech next year.—F. W. Friend's address is Duxbury, Mass.—R. D. Gale is with the Stone & Webster Engineering Corporation, 174 Milk Street, and is at present in Taunton on concrete construction.—C. W. Gammons will return as a student next year.—W. A. Gates is engineer with the Buffalo Expanded Metal Company, address 57 Johnson Park, Buffalo, N.Y. —G. S. Gould is with the State Board of Health, Boston.—A. E. Green is at Heroult on the Pitt, Shasta County, Cal., with the Noble Electric Steel Company. He is engaged in the new process of the production of steel by electricity.—P. P. Greenwood is with the Western Electric Company, Chicago. He and Crosby are rooming together.—W. I. Griffin comes back to Tech again.—Hapgood is with Stone & Webster, Boston.—J. B. Harlow also returns to Tech this fall.—W. T. Hoover (*ex* '07) is with the State Board of Health, Boston, Mass.—C. M. Hutchins is at Sparrows Point, Md., with the Maryland Steel Company.—J. F. Johnston, Jr., is with the McLoughlin & Walsh Construction Company, Marston Building, Kearny Street, San Francisco.—T. C. Keeling is with Stone & Webster, 84 State Street, Boston.—C. R. Lamont (*ex* '07) returns as a student this fall.—E. G. Lee is with S. Morgan Smith Company, 176 Federal Street, Boston. Lee is on the road to Benedick life, as his engagement was announced, July 15, to Miss Edna M. Grant, of Somerville.—H. C. Libby is with the American Bridge Company,

Pencoyd, Pa., address 101 Rochelle Avenue, Wissahickon, Phila.—Roy Lindsay returns as Dr. Gill's private assistant.—Dan Loomis is at Bath, Me., with the Bath Iron Works.—H. D. Loring is in Cincinnati, Ohio, with the Ferro Concrete Company.—W. S. Lucey is with the Eastman Kodak Company, address 3 Emerson Street, Rochester, N.Y.—H. H. McChesney is with the Oneida Railway Company, Utica, N.Y.—J. M. McMillan is the proud possessor of the following address: Care Veta Colorado Mining and Smelting Company, Minas Nuevas via Parral, Chihuahua, Mexico. That sounds just like Mac.—Macomber is with Stone & Webster, electrical engineers, 84 State Street, Boston.—F. S. MacGregor's address is 78 West Street, Hyde Park, Mass.—Stuart Miller is reducing his weight with the Cincinnati Milling Machine Company. His address is 3447 Evans Place, Cincinnati, Ohio.—H. L. Moody is with the Boston Rubber Shoe Company at Malden, Mass. Harry is assistant master mechanic.—F. W. Morrill is with the Schofield Company, 904 Pennsylvania Building, Philadelphia, Pa. His address is Fort Hunter, N.Y.—E. H. Packard is mechanical engineer with H. M. Plympton & Co., address 62 Winter Street, Norwood, Mass. Pack is the same old boy, and is "waiting for the time."—W. W. Pagon is with the Baltimore Bridge Company, Baltimore, Md.—R. W. Parlin comes back to Tech this fall.—M. H. Pease is with Stone & Webster, Boston, and has just been sent to El Paso, Tex., with the El Paso Street Railway Company.—Allen Pope is with J. W. Danforth Company, Buffalo, N.Y. His address is 1336 Harvard Street, Washington, D.C.—Rambo is with the American Locomotive Company at Providence, address 274 Benefit Street, Providence, R.I.—Karl Richards is with the T. J. Hind Company, concrete, 19 Milk Street, Boston. "Kelly" has been bossing a gang of dagoes this summer.—Franklin Ripley, Jr., is with the Troy Blanket Mills, Troy, N.H.—Don Robbins is with Horton & Hemenway, contractors, 683 Atlantic Avenue, Boston. —D. E. Russ is with the Revere Sugar Refinery, East Cambridge, Mass., where he is in charge of a laboratory he has fitted up himself. —M. W. Sage is with Sage Brothers Company, Boston, address 18 Bradshaw Street, Medford, Mass.—R. E. Sampson expects to go

to Nevada as mining engineer at Marietta, Sodaville County.—B. K. Sharp is with the Bath Iron Works, Bath, Me.—Herbert Spear is with the Burgess Sulphite Fibre Company, Berlin, N.H. He is assistant to the head chemist, and writes that he is getting great experience with the "unexpected happening every day."—F. C. Stockwell's address is 59 Arlington Street, South Framingham, Mass. —R. E. Thayer is with the American Locomotive Company, address 309 Benefit Street, Providence, R.I.—E. A. Thornton is with the Southern Pacific Railway at Tucson, Ariz.—W. F. Turnbull is with the New York Central & Hudson River Railway, address Tuckahoe, N.Y., Box 413.—C. V. Turner is at Lawton, W. Va., with the Laurel Creek Electric Company.—Sam Very is with Clinton & Russell, architects, address 518 West 151st Street, New York City.—C. A. Vose is at Marion, Mass.—P. B. Walker is with the Boston Transit Commission, 15 Beacon Street, Boston.—S. D. Wells is with the Green Fuel Economizer Company, 141 Milk Street, Boston.—J. D. Whittemore and Erle Whiting are taking the student course with the General Electric Company. Their address is 618 Chapel Street, Schenectady, N.Y.—L. C. Whittemore is in the engineering department, American Brass Works, Waterbury, Conn.—W. L. Woodward is with C. S. Bradley & Son, 41 Park Row, N.Y., engaged in experimental work in electrochemistry.

III. *Letters.*—Bob Albro writes:—

. . . I arrived home after the "Pop," and started to work for the Metropolitan Water Works. I am at the Clinton office, and am getting the practical work which every fellow needs. I may be in Boston late in the winter, and hope to see you. As I owe the "handsome man" a letter, I give it to him now.

—A few lines from the handsome man:—

. . . Mighty glad to see the old class is going to move after all. I have been with Horton & Hemenway since June 10, and have been working on a big car barn in Providence, R.I. I feel as if I were pretty well fixed, and like

the work, but how a man is going to get hitched on the money he earns by the sweat of his brow is beyond my comprehension. If you happen to get next to any get-rich-quick schemes, put me wise, for, if all goes well, next year is going to see me starting out on a life sentence. . . . LAWRIE ALLEN.

—Charlie Allen writes:—

Nothing of great bearing on my future life, outside of business, has happened as yet. But you know that it's in the blood of old '07, so look out for surprises.

—R. H. Crosby writes:—

Greenwood and I have arrived in Chicago July 6, and began the toilsome life for the Western Electric Company. Greenwood is taking the power apparatus course at Hawthorne, while I am trying to spoil telephone switchboards at Clinton Street.

—From Charlie Coffin:—

. . . I have been down here at Jamaica, Long Island, with the New York Board of Water Supply since August 3. I have decided to discontinue my relations with the Tech Show, and incidentally Tech, and try my luck at the legitimate.

—From Harry Moody:—

I went to work for an oil concern, but very shortly put them on the bum, for they failed after I had been with them two weeks. Then I came here with the Boston Rubber Shoe Company, as assistant master mechanic. I am the fourth Tech man on the place, the superintendents of both factories and the chemist being the others.

—Bill Woodward writes:—

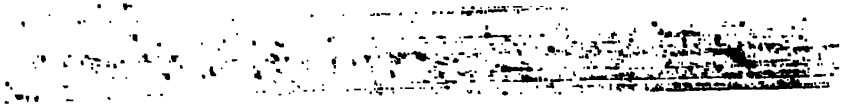
. . . I am with Charles S. Bradley & Son, of 41 Park Row, New York City, on some experimental electro-chemical work of a private nature. We are located at Bayonne, N.J., a very unattractive breeding-place for the famous Jersey mosquito.

The fellows will be glad to hear from Jimmie Walsh (*ex* '07), now a cadet at West Point. He writes:—

Received your note, and was mighty glad to hear from you. I have some pictures of the boys up here, and they serve to remind me of the good old days (Wednesdays) when we played at soldiering in the old Armory. It's quite a lot different up here, as you can imagine. About myself I can only say that "Uncle Sam" is certainly doing the right thing by me, and I am doing my best to show I appreciate it.

—R. G. Woodbridge writes:—

. . . I have been enjoying the longest and best loaf this summer. Spent eight weeks on a trip to the Middle West, spending most of my time and money in Indianapolis and Chicago. Four years at Tech proved insufficient for me, so I am coming back on a special train as research assistant in organic chemistry.



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