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The Technology Review

VOL. IX.

JANUARY, 1907

No. 1

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-