CHAPTER IX.

ORGANIZATION OF THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY.

1861-1865.


The fall of Fort Sumter and the outbreak of the civil war now turned all thoughts to national affairs.

MR. ROGERS TO HIS BROTHER HENRY.

Boston, April 16, 1861.

MY DEAR HENRY, — The newspapers herewith sent will acquaint you with the first act of open war committed by the Southern madmen, in which Fort Sumter has been compelled to surrender to an overwhelming force. The imbecility and faithlessness of Buchanan, and the active but secret treason of Floyd
and others, have so encouraged secession and armed it for the conflict into which ignorance, passion and desperate ambition are prepared to plunge, that just now there is no extreme to which the Southern excitement may not proceed. I greatly fear that even Virginia will lend herself to this treason, though it is plain that the western part of the State will struggle to avert this result, and that soon, if not at once, it will cut itself loose from the eastern section rather than give up the Union, to which it is particularly attached.

You will see by the proclamation that the attitude of the government at Washington is firm and just. The whole North is now aroused, and, with but few exceptions, men of all parties are earnest to support the Constitution and to show the strong arm in defence of the old flag. A large force will soon be gathered in Washington and at some other points along the border, to repel any attacks which the insanity of secession may project. Should Virginia and Kentucky determine to unite with the so-called Southern Confederation, our difficulties, at least for the present, will be much increased. The display of overwhelming strength which I trust the government at Washington is about to make, and the exposed position of these States in the event of a war, must have weight with reflecting men among them, and will, perhaps, do more than patriotic feeling to arrest the movements of secession.

Troops are now mustering on the Common in the cold rain, and a considerable force will be ready at a moment's notice to take their departure for Washington. . . .

Since my last I have seen our Bill signed by the Governor, and have been preparing to enter upon plans for the collection of funds. But in the present state of affairs it may be best to defer such an attempt. Perhaps some friends of our plan may give us a qualified assurance of help now, and take a more decided stand hereafter.
It is of great importance that the position of the free States and national government in this contest should be truly known in England. Every word of sympathy or even of toleration for the South arising from Europe, and especially from England, is magnified by the excited people there and does great harm.

I trust it is fully understood that the government and the free States generally have submitted to almost every wrong and injustice which violence and treason could inflict, except that of being actually subjugated, in the hope that better counsels would obtain the control in the Southern States, and not believing that the people of these States would have so lost their loyalty to the Union and their regard for their own future progress, as to persist in their attempt to destroy the government. Incredulous at first, the free States have slowly become satisfied of the necessity of some impressive display of their power; and although even now there is less of anger than of regretful indignation in the public heart, you may be sure that the twenty millions of the free States are of one mind, and will soon give proof of their determination to maintain the government, and to put a stop to treason.

It is not improbable that after the dignity of principle and law has been duly asserted, there may be a permanent severance of certain of the Southern States from the Union, and perhaps it will be best to leave the extreme slavites to themselves,—restraining them from the conquests and propaganda in Mexico and Cuba, at which they have undoubtedly been aiming for some time past.

James and several of his friends, who have been acquiring the drill of the Zouave and other corps, will probably undertake to organize companies of their associates in the city, with the view of placing themselves, when needed, at the call of the government. A large body will rendezvous this week at

1 James Savage, Jr.
Springfield, ready for marching orders. The greater the display of energy and earnestness now, the less will be the danger of attack on the national property, and the better the chance of bringing the seceding party to their senses without serious loss of life.

It grieves and mortifies me to see several of my old friends and pupils among the most passionate leaders in this revolt, and it fills me with indignation to see the terrorism which is used to silence the national patriotism and quiet remonstrances of those in Virginia who oppose the secession movement and other wild extremes of the party that is now labouring to carry the State into the traitorous confederacy.

We are all well, and looking without serious fear to the ultimate result.

Boston, April 30, 1861.

... The promptness and courage of the Massachusetts men with those of New York, Rhode Island and Pennsylvania, who have followed, have made a powerful impression upon Maryland; and this, with the deepening thunder of the coming torrent from the whole North and West, is evidently startling and amazing the people of Virginia and the Southern States. The disunited North, which they had been led to expect by their own leaders and by some of our disloyal prints, proves to have been an illusion of brains heated by party strife; and the fire of patriotism, that blazes on every hill in the free States, is beginning to carry consternation as its gathered light towers up in the view of the whole South.

There are strong indications that Maryland, after all the bluster of her traitors and cowardly passiveness of her Union men, will refuse to pass a secession ordinance, and even Virginia, whose action has been altogether unworthy of her ancient name, is evidently pausing now to calculate results. The western part of the State will almost certainly be loyal in any event.

... Did I mention in my last that, at my sug-
gestion, our Thursday Club had subscribed one thousand dollars for clothing for the soldiers? . . .

Of course there is little of science or letters thought of now. I have been reading, with interest, Leonard Horner's address, of which he sent me a copy, and think it a valuable abstract of the recent views in chemical geology, and of the research in regard to primeval man. . . . Do not, my dear Henry, think, or let any one suppose, that we are in any degree distrustful of our republican liberty because of the present condition of things. You know, and have often said, that there was danger of disruption from the permission in the old Constitution of the incompatible element of slavery in our system. When the present conflict shall have closed, this, if allowed at all, will be under such conditions as to secure its progressive extinction.

A newspaper report of the action of the Thursday Evening Club, referred to in the foregoing letter, was as follows (April 27, 1861):—

"Last evening, at a meeting of the Club at the house of William Ropes, Esq., Professor Rogers, who was called upon to speak on some matter pertaining to science, very gracefully declined to discuss the topic proposed, and then made a stirring appeal to the Club in favour of providing a regiment of our brave volunteers with knapsacks. Hon. Edward Everett, the President of the Club, sustained the proposition of Mr. Rogers in an eloquent speech. A subscription paper was at once prepared, and in a few minutes one thousand dollars were subscribed for the purpose, by the twenty or thirty gentlemen who were present."

Under the same date as the last letter (April 30) is one devoted wholly to scientific matters:—
TO HIS BROTHER HENRY.

Boston, April 30, 1861, Evening.

. . . In recurring lately to the question of the age of our Mesozoic rocks, I have been collecting facts relating to the similarly doubtful deposits of Europe. These, so far as I can see, go to strengthen me in the view that I have maintained as to the alliance of the Chesterfield, North Carolina, etc., strata with the bottom Jurassic of the Old World.

A year or more ago Lyell was stated to have decisively concluded to consider our rocks Triassic, and even in part Permian, founding his conclusion on Heer's \(^1\) and others' examination of fossils. Some of them were undoubtedly mistaken — that, for instance, of our great *Pecopteris* having *inosculating* veins!

Further, while Bornemann (to whom Lyell refers) in 1856 placed the Lettenkohle of Bayreuth in the Triassic, later authorities — von Bauer, Braun, etc. — call it and the bone bed, bottom Lias on the horizon of the Koessen strata.

I wish very much to get all the authorities and plates and descriptions of fossil plants belonging to the Jurassic and the Triassic, in order to prepare a monograph by and by of our Mesozoic rocks.

The plant which I found last summer in Perry, Me., and mentioned in the Natural History Society as closely allied to the *Cyclop. Hibernica* of the British Upper Devonian, has been lately examined by Dawson, who agrees in my conclusion. But as the European fossil is rather a *Naeggerathia* than a *Cyclopteris*, so is the Perry plant a *Naeggerathia* of an allied species. This genus *N.* seems to be a striking feature of the upper Devonian rocks. Dawson will give an account of this along with some Devonian plants from Gaspé.

I have been long anxious to know from Rupert Jones what he made of the numerous specimens of *Estheria, Posidonia* and of *Cypris*, which I left with

\(^1\) Oswald Heer, Director of the Botanic Garden, Zurich.
him, derived from the Mesozoic of Pennsylvania, Virginia and North Carolina. They were my most expressive specimens. I wish you would ask him for me to give his conclusions as to their affinities, whether Jurassic or Triassic, and to refer me to any publication in which he has described a part or all of them.

I am strongly inclined to the opinion that we shall have to give up the separation of Lias from Trias where the series is complete, and I believe that we have more reason for placing our middle Secondary with the former than with the latter.

I wish I could spend some months with you in Switzerland; among various objects I am impatient to see their European Liasso-triassic rocks.

I do not consider this any better than a scrawl. I have poured out all the political news in the other letter...

Boston, May 7, 1861.

... The position of Virginia in this crisis is not only anomalous, but utterly disgraceful. Just now General Cocke, son of our old friend, and with him the Governor of the State, talk about defending the soil of Virginia against Northern invasion, when only a few days ago the State seized the United States property at Harper's Ferry, and while at this time they have a camp of a thousand of South Carolinians and others at Richmond on their way, as they say, to attack Washington...

I still believe that a large part of Virginia and all Kentucky and Tennessee will yet side with the free States...

It is difficult to divine how the slavery problem is to be settled; but one thing is certain, that the control of the slave interest in the politics of the continent is done forever, and that the seceding States will never be readmitted on the favourable conditions of the old Constitution.

We have nothing doing in science or letters. Of course our plans on the Back Bay must wait for the
restoration of tranquillity. . . Tell me all the scientific news you hear in London. When at Sunny Hill I shall be able to resume study and do some work in science, which is almost impossible now and here. . . .

Boston, May 16, 1861.

. . . Andrew has shown himself as wise as he is patriotic and just minded. I believe there has rarely been a public functionary here so entirely pure, so humane, and at the same time so discreet and so perfectly honest and fearless. . . . I think you would do good service by having some of the articles of our papers, which give a true account of the state of affairs and of the spirit of the country, republished in one or two leading prints in London. I am utterly astounded to see how rapid has been the demoralization of the Southern mind for the last ten years, and how powerless the better men of that region have become under the despotism which presses upon them.

I shall mark in red hereafter such articles in the papers sent as seem to be most worthy of notice abroad. You may rest assured that we are to come out of this contest with a far better title to the world's regard than we have ever had as a nation before.

I am anxious to have a precise description of the arrangements used in the Way light (electric) with a fine stream of mercury. I am trying to get up an arrangement, with Ritchie's help, which may be of use.

FROM HIS BROTHER HENRY.

Edwards's Hotel, 12 A George Street,
Hanover Square, London, May 17, 1861.

. . . Amid so many conflicting views and predictions as the public papers give one, it is most comforting to get your own calm, enlightened notions of the position of affairs. The sentiment in this country is almost universally one of deep regret at the lengths to which the controversy in the United States is rushing. The general sympathy is with the North, but
all the more enlightened people, non-commercial as well as those engaged in trade, deplore a war as wicked and unnecessary. My own conviction has long been that a breach and final separation must come, but I never dreamed of its approach so soon. Had there been as sincere a love of peace in the South as in the North and as much enlightened forbearance and moderation, the strife could have been healed, but in the actual temper of the South a crisis could not have been averted by any further concessions. This, I think, is now beginning to be understood. But the people of England have never understood the merits of the controversy, or the extent of the encroachments on the one hand and patience on the other, and they underrate the energy and warlike prowess of the inhabitants of the free States.

TO HIS BROTHER HENRY.

Boston, May 17, 1861.

... From the remarks of the London “Times” and many other of the British papers, it is evident that as yet the true nature of the questions between the slave and free States is scarcely apprehended by those who are attempting to enlighten the British public on the subject. Much less is there any conception of the sublime uprising of the whole population of the free States, irrespective of former party differences, in support of constitutional liberty and law.

Until lately I did not believe that the sentiment of loyalty to our great national principles, as symbolized by the flag of the Union, was so profound and universal. Now I am convinced that there nowhere exists, or ever has existed, a nation in which this sentiment is more deeply implanted and more capable of impelling a whole people to heroic sacrifice and patient endurance. In the maintenance of the rights of humanity and the great principles of our representative constitution, I have no shadow of doubt that every present interest of the North, whether of commerce,
manufactures or agriculture, will strain its utmost power, and pour out its entire treasure to crush the rebellion and to establish our government on a basis impregnable forever after to the assaults of the oligarchy which has so long had undue control over it.

Boston, May 20, 1861.

I have been reading the report of your lecture at the Royal Institution, and think you are very successful in sustaining your new theory of the Parallel Roads. It will, however, be very important to have perfectly reliable measurements of relative level and horizontality. In the last number of "Silliman" you will find a long article by Hunt on recent labours in American geology, in which he commends and seemingly adopts Hall's notion of the origin of mountains, plications and metamorphism. He and Logan slur over the former dogmatizing of Logan as to the Hudson River age of the Quebec rocks, and accept as inevitable the dictation of Barrande, founded on certain fossils, that these rocks are of the primordial group. . . .

The last advices from England indicate a better understanding of the position of the free States towards the seceding ones than seemed at first to prevail. But the writers in the "Examiner" and "Times" show a marvellous ignorance of the primary principles of the national government in many of their comments and vaticinations. They seem to regard the United States as a mere league of independent States, from which each is at liberty to withdraw just when and as it pleases. They overlook the fact that we have national courts, a national legislature, national citizenship, a national territory independent of the several States, national but no state mint, a national army and navy, and various other of the grand characteristics of a single nationality. The right of secession, except as tantamount to the right of revolution, was

1 T. Sterry Hunt.
not even contended for by Calhoun in the hottest days of nullification.

LUNENBURG, June 11, 1861.

We came up to Sunny Hill four days ago, finding the grassy lawn and all the country around as freshly green and inviting as in any former year, but bringing with us hearts too much occupied with public affairs to be capable of the usual keen enjoyment of the rural home. James, whose love of horticulture has given an interest to our out-of-door pursuits, is not here to contribute animation to our little circle, and I fear that in his absence our spirit of improvement will grow languid. But for the desirableness of having her father withdrawn from the growing heat and excitement of the city, E. would have gladly remained a week or two longer, awaiting the movement of James's regiment. I feel great concern for our army in the tide-water region of Virginia and Maryland. Indeed, whatever precautions may be observed in this respect, I believe that more injury to life and health will come from the intermittent and bilious fevers of that country than from the gunpowder of the Rebels.

FROM HIS BROTHER HENRY.

12 A GEORGE STREET, HANOVER SQUARE, LONDON, June 21, 1861.

Since I wrote to you last week I have succeeded in finding Mr. Ladd, the instrument-maker. He recalled to memory what both he and I had seen at the meeting of the British Association in Oxford of the performance of Way's electric light. At the suggestion of Faraday it was there compared with the light from the carbon points in ordinary use, and found to be greatly inferior in illuminating intensity, but its worst defect was a want of steadiness which Ladd tells me has never been overcome. I have seen the kind of instrument Ladd mentions in the enclosed note, in use. It is even better for easy manipulation than the older
form of the charcoal or carbon points apparatus used daily by Tyndall at the Royal Institution. Both Tyndall and Faraday are still out of town, but Ladd informs me that they condemn the Way light as altogether inferior to the other. The improvement Ladd speaks of is in the separation of the charcoal points by mechanism the moment of the establishment of the current, insuring thus steadiness without screw adjustment by the operator, whose fingers are thus free for other demands. Please keep me informed of any news in geology in the United States, especially any good text-book. Rupert Jones tells me he has just written to you. I go to-day to assist him and Mr. Horner in identifying some rocks and fossils in the American portion of the foreign collection of the Geological Society of London. . . .

The Legislature of Massachusetts, during the session of 1861, had passed a bill providing for the appointment of a State Inspector of Gas Meters and Gas, and on June 18 Mr. Rogers was appointed by Governor Andrew to fill the place. He at first declined, but finally reluctantly accepted the duty of organizing this new service.

TO HIS EXCELLENCY JOHN A. ANDREW.

LUNENBURG, June 20, 1861.

MY DEAR SIR,—I have just received the official announcement that I have been appointed to the office of Gas Inspector for the State. My letter to you on this subject some days since, although intended to express my decision not to accept the place, was, I fear, less explicit than I supposed it to be, and I therefore avail myself of the earliest opportunity by post of most respectfully declining the appointment and, at the same time, of assuring yourself and the Honourable Council of the great personal gratification I feel at this mark of your good opinion and confi-
dence. I appreciate the difficulty of making a suitable appointment in the present case, and would most gladly do all in my power to assist you.

The more I think of the business capacity, integrity, education and scientific taste of Mr. John R. Rollins, of Lawrence, of whom I have already spoken to you, the more am I confident that he would be able to fulfil the duties of the inspectorship with firmness and ability. If, therefore, your choice should range beyond those who have had actual scientific experience in connection with the subject of gas, I am convinced that you could hardly make a better appointment. I remain,

Very respectfully and truly yours,

WILLIAM B. ROGERS.

TO HIS BROTHER HENRY.

LUNENBURG, June 25, 1861.

... I have now to tell you a matter about myself that will surprise you. By a bill of the last Legislature a new office was created, called the Inspector of Gas Meters and Illuminating Gas for the State, who is, as it were, to stand between the consumers and gas companies. The salary is $3,000. The Governor, some weeks ago, consulted me about it, asking me to accept the office. This I refused, urging the superior qualifications of Hayes, and my own inexperience in business matters. Still, some days ago, I saw by the papers that he and the Council had appointed me. I wrote to decline, but soon after received such letters of encouragement and satisfaction from various quarters that I felt it my duty to reconsider the decision. I went to town yesterday to see the Governor and examine the provisions of the law. After a conference with him and with Hayes and others which satisfied me that most of the work could be done by deputy, and that, after organizing the department, I should not require to give more than one or two hours a day

1 A. A. Hayes, analytical chemist.
to the office, I came away strongly inclined to make trial of the duties for a year.

Should I accept, as I think I shall, I shall first establish an office, where I shall provide, at the expense of the State, a perfect and complete set of standard gasometers, photometers and other essential apparatus of the most perfect patterns, and shall employ one or two expert assistants for doing the chief work of inspecting meters, etc. My occasional trips to other parts of the State will, perhaps, be good for my health, and the nature of the studies and duties involved will be sufficiently scientific not to be distasteful. I should expect this office not to interfere much with general science, and it may help on my Technological plans. At all events, I think I will make the experiment for a year. There appears to be universal desire for my appointment; and Hayes, who was in some respects ineligible, promises most heartily to aid my arrangements in every way in his power.

I must ask you, my dear Henry, as soon as possible to send me such recent documents as you can procure from Mr. Glegg or others, on any subject connected with illuminating gas, as I shall want to be armed in the completest manner possible.

LUNENBURG, July 7, 1861.

I shall have no time in Boston to-morrow for writing, and must content myself with being briefer than usual. The Gordon Regiment, to which James is attached, comes from camp to-morrow morning to take its departure by the Sound for New York, whence on Tuesday it will proceed via Philadelphia and Baltimore direct to Washington. It is very completely equipped, has been well drilled in the camp, and is admitted by all who have seen it to be in every respect the best appointed and most efficient regiment yet sent to the war from Massachusetts. The Colonel 1

1 Colonel George H. Gordon, who afterwards rose to General, commanding a division.
and Lieutenant-Colonel are West Point men who have seen service. The other officers are of education and standing, and the men are fine specimens of earnest, sober, intelligent New Englanders.

Lunenburg, July 7, 1861.

... James is in admirable health, and makes a superb officer, already admired and beloved by his men and fellow-officers. It is a great comfort to us to know that he has many old friends for his companions in arms, and that whenever the occasion arises he will have devoted help and sympathy. ... I go to New York, shall see James, and shall tarry a few days to look at the admirable arrangements of the Gas Works laboratory under Torrey's charge, and other matters relating to my new office, of which I informed you in my last.

I shall attend personally more especially to certain chemical questions, and to the photometrical observations that will be called for. I shall therefore get up a very complete set of standard instruments and analytical and photometric apparatus. ...

You will, I know, be impressed by the simple eloquence and cogency of Lincoln's truly republican message. You can see in reading it "the man behind the words," a lover of liberty, a consistent, patriotic, humane and courageous magistrate. Compare the transparent truth and noble simplicity of the document with the sophistries and passion and duplicity of the messages and speeches on the other side, and you have a good measure of the principles which govern the free and slave States in this contest.

1 Temple Place, August 21, 1861.

... I am sorry to see the spirit in which Russell writes about the Bull Run affair. He exaggerates

1 George L. Andrews, who succeeded Gordon as colonel of the regiment; afterwards professor at West Point Military Academy.

2 Reporter for the London Times.
enormously the future influence and importance of this repulse, and fails to understand fairly the temper and character of the Northern people.

Do not let our friends be at all despondent on account of late occurrences. The strength of our republic is undergoing a great trial, but it will prove itself capable of encountering the rude shock even of this formidable civil war without abandoning its principles, or losing any of its capacity of future development. In the first stages of the contest we are less prepared for efficient war than our enemies, just because we continue as before to observe all our constitutional duties, rights and forms, while they, taking the shape of a military despotism, trample upon all civil rights and constitutional obligations.

I came to the city early this morning to remain until Saturday. This will, I suppose, be my usual distribution of time for the rest of the season,—Saturday and Sunday in the country, the rest in town.

I have furnished, as well as I could, materials for a short biographical notice of you, and James and Robert, for "Appleton's Cyclopædia," which Ripley requested.

SUNNY HILL, September 1, 1861.

. . . I am now nearly ready to open my office, in apartments behind Ritchie's shop, which you remember is very conveniently placed near Temple Place on Washington Street. To-morrow I begin with my assistants to verify the gas holders or provers belonging to the gas company, and the meter venders as preliminary to the use of these in proving meters. The same will have to be done at all the principal gas works in the State, the great majority of which luckily are within easy reach of the city. I hope after this verification of standards to commit most of the detail of meter-proving to my deputies. Two days ago I

1 George Ripley, joint editor with C. A. Dana of The American Encyclopædia.
compared our recently made cubic foot measure with one imported from London, and stamped by Airy's authority, and was pleased to find the coincidence so close that the adhering moisture on the interior would quite account for the difference.

... Mr. Lowell has requested me to give a course in January, and I have fixed, partly at his suggestion, on the subject of the Application of Science to the Arts, as furnishing, perhaps, opportunity for promoting my plans connected with the Institute of Technology. In the present excited and anxious state of the public mind, scientific or literary lectures are not likely to command the usual attention. Indeed, for myself I confess that I could not, at present, take more than momentary interest in any subject of study or discussion unconnected with the momentous struggle in which we are engaged. I pray Heaven that before January much of this anxiety will have been relieved. ...

... The Natural History Society, having sold their building in Mason Street to the city, have removed all their collections to a building near the Revere House, given them last winter, and will remain there until they shall have completed their proposed building on the Back Bay land. They are now comparing plans and obtaining estimates for the new structure, and may begin to lay its foundations within a month or two. ...

September 3.

I add a few lines in Boston. You will see by the newspapers I send that an important success has been obtained by Stringham on the coast of North Carolina. The possession of the forts at Hatteras Inlet gives us command of the whole of that coast nearly to Wilmington, and commands the southward trade which was carried by the Dismal Swamp Canal to Norfolk. But what is better than many such victories is the stirring proclamation of Frémont, dealing with the rebels and their slave property just in the right way.
This I deem but the beginning of a more energetic and direct recognition of the anti-slavery purpose of the war. A similar proclamation made in Virginia some months ago would have been of great effect. The enlisting is very active yet; and if the government wills it, the people will triple the numbers of the present army within a few months.

1 Temple Place, September 17, 1861.

... For the present my gas engagement precludes much attention to purely scientific matters. For the last ten days, with one of my assistants, I have been applying my beautiful standard measure in testing the capacity of the graduated holders, that are to be used in proving meters. The apparatus works admirably, and shows itself to be perfectly reliable. I have also been maturing and putting in practice a facile plan for proving meters, both as to their exemption from leakage and their registration, by the use of air alone, instead of following the common practice of proving them with gas. I prefer the air because it gives us more command of a common temperature of the air and water, because also we know its rate of expansion with heat, which is not true of these hydrocarbon mixtures anywhere near their condensing points, and because we get rid of the disturbing effect of the burning gas on the temperature of the apparatus. I hope that our further and larger trials will so succeed as to commend this change to general introduction in the State.

... The more I read and see on this subject, the more fully am I satisfied with the justness of my conclusions as to our Eastern Virginia and North Carolina coal rocks. I have no doubt that in less than five years they will be classed with the lower Jurassic, in spite of the confusion which Emmons has introduced for the present. ...
I use the leisure of this Sunday afternoon to make ready for the steamer’s mail of Wednesday. Tomorrow I shall plunge into the usual engrossing work of my Inspection, and may not have time for any addition to my letter. I have now good assistants, or deputies, who do much of the manual work, but I have still a thousand matters to attend to in preparing instruments, in fitting up a gas laboratory and photometric room, and attending to the calls of gas men and meter-makers, who are all at this time crying out vehemently for our services. Besides this, there are some critical and embarrassing questions as to the application of the law, especially in regard to wet meters, which call for experiment and study. There is a very general preference for the dry meter here, and there are interests, both of meter-makers and certain gas companies, strongly combined to exclude wet meters entirely from use. On the other hand many of the small companies have a large proportion of such meters in use, and they are naturally apprehensive lest my decision may destroy the value of this part of their property by the refusal of my seal and stamp. I am, therefore, very carefully scrutinizing the capabilities of the wet meters before I enter upon their regular inspection. . . .

Some days ago I heard from Robert, who is commencing lectures. The class is very small, but the faculty very properly resolve to go on as usual, and there is hope for improvement during the winter. The Jefferson School is almost or entirely without pupils. . . .

The following letter is from Rev. Richard MacDonnell, Provost of Trinity College, Dublin, who, at the time of Mr. Rogers’s railway accident near Norwich, England, in 1857, wrote to him on hearing of the
accident to draw at will upon him for funds. This kind offer was never forgotten by Professor Rogers.

PROVOST's HOUSE, DUBLIN, July 15, 1861.

MY DEAR FRIEND,—I received a short time ago by post a Boston newspaper. It did not contain any mark, and it was not followed by any letter explaining whence it came. I have been comforting myself with the hope that it came from you, as a token of recollection. . . . I find that up to the accounts from New York of the 2d inst., no material or heavy blow had, at that time, been struck by either of the parties. What a painful and melancholy conflict it must be! I am quite annoyed by the newspaper articles of the Northern States as to the malevolent feeling that breaks out against England, because of her having taken the only line that she could take, or ought to have taken, that of strict neutrality. The sympathies of the British Empire are with the anti-slavery States, but that does not make out a case for thrusting ourselves into the position of a belligerent. . . .

I trust that the American dentists have, by their skill (eminent beyond that of Europe), repaired the effects of your English accident.

Believe me, my dear sir,
Your sincere friend,
RICHARD MACDONNELL.

TO THE REV. RICHARD MACDONNELL.

BOSTON, October 27, 1861.

MY DEARLY VALUED FRIEND,—I reproach myself for having delayed so long to acknowledge your very kind letter received nearly three months ago. It will not excuse, though it may extenuate, my fault to say that a public appointment, taking effect about the same time, has greatly occupied me ever since, compelling me to be often absent from home in various parts of the State. It is a semi-scientific office, having no connection with our war, and is, therefore, robbed
of much of the interest it would otherwise have for me. For in a cause so truly that of civilization and humanity I long to be an active participant. A feeble frame and the demands of home have alone constrained me to remain where I am, while friends and relatives have offered themselves to assist in quelling the rebellion, and vindicating the wise Constitution under which our common country has so greatly prospered.

What you say, my dear sir, of the language of some of our papers in regard to Great Britain is no doubt just. But the "Times" and several other leading prints in England and Scotland have been at least equally in fault, and are now in almost every issue uttering such misrepresentations and malevolent sophistries as astonish all educated people here, and when copied into our innumerable local papers are calculated to excite intense indignation, if not estrangement.

The love of the mother-land had, until lately, grown so strong among all classes, especially in the Northern and Middle States, that scarcely a whisper of hostile memories or old prejudices was to be heard. When the young Prince came to see us he was met, not with courtesies merely, but with the welcoming affection of a nation's glowing heart. And despite the misconceptions that have been ignorantly or maliciously fostered by newspapers in this country and in England, I believe that the respect and regard for the British people is still earnest and strong among us. We feel that we are contending for principles essential to the progress of humanity on this continent,—principles of national and social polity, which must claim the sympathy of all friends of constitutional liberty and human amelioration in the Old World. We have now a large army marshalled along the border of the Southern States; and whatever may be the varying fortune of present minor conflicts, the resources and determination of the free States cannot fail to work out results which will give greater consistency, as well as stability, to our free institutions, and
in the end open a truer and nobler prosperity to the Southern States themselves. The conflict is most painful, calling for great and peculiar sacrifices. Let us hope that at its close humanity will have been a great gainer.

The activity of our workshops and farms continues with but little diminution. The productive industry of the free States bears easily the expenses of the war. Volunteers are still eager for enlistment, and the national loan is freely taken by persons of all classes. It is felt that the contest has not come a day too soon, and that since it has been referred to the arbitrament of war, we must not stop until slavery is placed on such a footing that, if permitted to continue, it shall never again control the nation, and plunge it into such unspeakable evils. Let me beg you, my dear friend, to be assured, whatever the papers say, that this conflict will not be permitted to cease until the free States have secured perfect and permanent success in this respect, and that it will be brought to a close at once when this has been done.

Your account of your pleasant journey in Bavaria, the Tyrol and northern Italy, and your prospect of a pleasant vacation by the seaside, reminded me of a thousand delightful scenes and incidents of my brief visits to Europe, but of none more vividly than my happy tour in Ireland, and of the sojourn in Dublin, in which I had the good fortune to become acquainted with yourself and family.

Though so remiss a correspondent, be assured I have not forgotten your cordial hospitality, or the kind and thoughtful sympathy of your letter to me at Norwich.

FROM HIS BROTHER HENRY.

1 College, Glasgow, November 9, 1861.

... I wish I could send you my long-promised answer to your requests respecting the gas works in this quarter. ... Just as I was on the eve of making
my visit to the Duke of Argyll at Inverary Castle, I was constrained to come to Glasgow upon college business, and when again ready it was too late, the good duchess writing that they were unexpectedly called to London. The duke sent me some glowing words of sympathy upon the American crisis.

My friend Professor William Thomson is, I am glad to say, able to return to all his class-room avocations. I send you a recent address of Sir David Brewster's, inaugurating the session in Edinburgh. I think you will say it shows a marvellous freedom of imagination and thought and knowledge for a man of eighty. But this is the land of vigorous old men and women. I have lost another kind friend in Edinburgh in Lady Murray. Think of her goodness in remembering our Principal, Dr. Barclay, in a legacy of £1,000, merely as a friend of many years.

You see I have nothing to say at present upon matters of science. . . .

TO HIS BROTHER HENRY.

 Inspector's Office,
 313 Washington Street,
 Boston, November 22, 1861.

. . . The most stirring event of the last week, however, is the capture of Mason and Slidell by our friend Wilkes, commanding the San Jacinto, sloop of war. If ever a neutral vessel was engaged in carrying contrabands of war and despatches, the British steamer in which these traitors were proceeding on their mission was so engaged, and, therefore, she was most rightfully made to deliver up these ministers of mischief. We have no fear that the act will not be fully sustained by the rules of international law and by copious British precedents.

This reminds me to say, my dear Henry, that no expression of opinion which has emanated from any high authority in Great Britain has given more hearty pleasure than the part of the speech of the Duke of Argyll at Inverary alluding to our affairs. It is so
truthful, wise and just in its appreciation of the real condition of the question and the parties concerned, as well as the momentous interests of humanity involved, that it has been copied into all our papers.

Last night I made a final report to the Natural History Society on the subject of their new building, and I presume before a month the labourers will be at work on the foundations.

We have nothing of interest in science.

I packed and marked this morning two large boxes of flannel shirts and drawers to the address of Captain James Savage, 2d Regiment Massachusetts Volunteers. These are for his Company, from Mr. Clarke’s congregation, and will be a most timely contribution.

The accounts of James’s health are extremely gratifying. Of his noble qualities as a commander, and his exemplary bearing as a soldier, we hear the highest praise from all quarters. He is so high and pure in purpose, and so humane with his great firmness, as to have become already a marked officer of the regiment. I look for the best kind of distinction for him, as well as for as much promotion as he would desire.

Boston, December 1, 1861.

... Accept heartiest thanks, my dear brother, for the pains you have taken to collect information for me in regard to gas apparatus. The contents of your last letter are quite interesting in their bearing on the merits or demerits of wet meters, a subject much discussed here. The experience of last winter in Glasgow is only a fair sample of what is liable to occur with wet meters in cold New England every winter. Mr. Laidlaw and Mr. Bartholomew will, therefore, not be surprised to learn that the gas companies generally are replacing them by dry meters wherever new ones are required. Thus far I have inspected comparatively few of the former, but my industrious deputies have tested, according to my pre-
scribed methods, nearly two thousand dry meters, the larger part of which I have stamped and sealed. . . . The severe ordeal of the inspection is having the effect of causing the meter-makers and gas companies to give more care to their own preparatory testing, as besides the delay consequent on numerous rejections, the re-testing involves a double expense to them. The leading companies and makers are adopting my methods and instruments instead of the very imperfect and fallacious methods previously in use, so that I think before the first year is closed we shall witness a very important improvement in the regularity of action of the meters, and the adoption of a uniform and comparatively exact method of testing throughout the State. A New York man, one of the largest manufacturers in this country, is now here for the purpose of learning why so many of his meters have been rejected by me, although sealed and stamped by the New York inspector. I am showing him how much temperature has to do with the result, and shall before he leaves carry him through a course of demonstration which I think will enable him hereafter to send his meters to this market in a condition to abide the inspection reasonably well.

I like Mr. Laidlaw's or Allen's plan of introducing the gas. As to the fountain feeder, you know this has been in extensive use here in the Darracott wet meter. In some respects it is excellent, but the tendency of this arrangement is to keep the meter at the high-water line, or fast, as long as the reservoir contains any fluid. A concussion, or a sudden change of pressure, has the effect, for the moment, of unsealing the feed pipe and allowing gas to ascend into the fountain, forcing some of the water out. This often repeated will evidently tend to raise the level in the meter much above the point at which the feed tube dips, and where it is proposed to be maintained.

Should you visit the works, please learn what exact form of gasometer is used for proving meters;
and if an engraving of one is to be had, send it to me. But enough of this, or you will say my letter smells too much of gas, if not of oil.

What you say of Lady Argyll’s words of sympathy for the cause is in keeping with the noble speech of the duke, to which I referred in my last, and which has been so much liked here.

This contest is working a marvellous change of sentiment among the conservatives of the North, who are beginning to look at slavery through other than Southern spectacles, and will now tolerate the ideas that a year since they regarded as incendiary. . . . It is said, and I believe it, that our entire army is rapidly acquiring more earnest anti-slavery convictions, or, as the papers have it, being abolitionized.

I observe he [Sir David Brewster] cannot forego the opportunity of a blow at Darwin. But his is not the mace that could do much damage to such an antagonist.

In the last number of “Silliman” is a translated extract from Geoffroy St. Hilaire, on the immutability of species, which it did me good to see within the cover of that periodical. It is in a degree Darwinism, but more in unison with our ideas of the gradual modification of species through external conditions.

FROM GOVERNOR ANDREW.

BOSTON, December 15, 1861.

MY DEAR SIR,—Will you have the kindness to give me, as soon as you can, in writing, any views you may have and desire I should present in the message on the “Gas” business.

Please also favour me with a paragraph stating the present position of the Natural History Society and Technological Institute in their relations to the State and state lands.

Yours faithfully,

JOHN A. ANDREW.
TO HIS BROTHER HENRY.

1 Temple Place, December 31, 1861.

My dear Henry,—The most important news to us all will have reached you some days before these lines. I mean the decision of our government to surrender Mason and Slidell. I send you a paper containing Mr. Seward's official communication on the subject. There is a general acquiescence of all parties in this decision of the government, for which, indeed, our own reflection had prepared us.

While no one blames Commodore Wilkes, but on the contrary all think he acted under high motives and with great courtesy, and while many of our ablest lawyers think he was entirely justified in his course by the law of nations, especially as practically interpreted by Great Britain, there is a general agreement as to the importance of maintaining the old American idea of the sacredness of the flag; and, therefore, Mr. Seward's argument and the consequent surrender of the traitors are readily acquiesced in in all quarters. We think by this to secure from Great Britain for all time to come a practical recognition of the principle which in her former dealings with us she continually denied. Nothing could better demonstrate the solidity of our government and the earnestness of the national purpose at this time, than the public acquiescence in a course which will subject us to the taunts of rebels and their sympathizers, and which, from the manner in which the surrender was demanded, could not in other circumstances have been conceded, and which on this account is yielded now under a deep sense of mortification and wrong.

... My heart has had a load lifted from it since the fear of imminent war with England has been removed. Still, so strange has been the temper of the British press and part of the people towards us, that I shall not feel quite safe until we have had a great success in the field.
TO GOVERNOR ANDREW.

1 Temple Place, January 2, 1862.

My dear Sir,—I enclose a short statement from your Gas Inspector, relating simply to the progress thus far made in the work and the means by which it has been accomplished, intending hereafter, if thought desirable, to present a somewhat full report of information and suggestions likely to be of interest to the Legislature and the public. I have been so very unwell that I have been unable to pen a paragraph on the subject of the Institute and Natural History Society. But should your message be delayed, I will try to-morrow.

Yours very cordially,

William B. Rogers.

TO HIS BROTHER HENRY.

Boston, January 7, 1862.

As regards home matters, you will be interested to know that the building fund of the Natural History Society has been much increased, and that we are beginning to provide piles and bricks for the new structure. The Technological Institute has not yet collected a fund, but with the dawn of better times, in the spring probably, we shall be preparing to put a part of our plan in operation.

My course [of Lowell lectures] on the Application of Science to the Useful Arts will, I hope, interest many in behalf of the Institute of Technology.

My gas inspection is so full of care as to preclude all chance of scientific work. I shall endeavour to put the office on a sound footing, and at the end of the year shall be thinking of giving it up. The exposure of health in breathing the blasts from old meters is not trifling. Of late I have had less of it, but it was doing me hurt. . . .
PROFESSOR O. N. ROOD TO MR. ROGERS.

TROY, January 9, 1862.

DEAR SIR,—A few days ago I sent an article on the photography of the electric spark to Silliman, when he informed me by letter that you had read a paper on this subject before the British Association (1860), which, of course, I knew nothing of, as I was not at Oxford at the exact time. Silliman adds: "If it should seem strange to Rogers that you have not seen his paper, tell him that he should not have hid his candle under the bushel of the British Association, but have set it on the hill of science, the 'American Journal,' and then it would have been known of all men."

As it seems, then, that you were in advance of some others whose photographic work I mentioned, I now wish the means of correcting this involuntary omission. If you cannot send a copy of the paper, give me at least a hint of its contents. I would like also to say, if possible, that I had seen some of the prints.

What do you think of Dove’s new photometric method and of the recent investigations of Feddersen on the duration of the spark?

Mrs. Rood and I wish to be kindly remembered to Mrs. Rogers.

HENRY BROMFIELD ROGERS, Esq., TO MR. ROGERS.

WASHINGTON, March 7, 1862.

DEAR PROFESSOR ROGERS, ... From a paragraph in one of the newspapers, which casually met my eye a day or two ago, I learn that our Natural History Society is about to proceed to the erection of a building for its use upon land on the Back Bay which has recently been ceded to it for this purpose by the State of Massachusetts.

To your intelligence, weight of character and

1 A Boston merchant and one of Mr. Rogers’s warmest friends, but not a relative.
never-faltering energy it is, I believe, mainly due that this noble enterprise has thus far been brought to a successful issue; and I desire, not only to congratulate you upon the occasion, but, as a native of Boston interested in everything that concerns her welfare, to express my deep sense of personal obligation. Institutions like that which you are striving to bring into active being are as essential, in my judgment, to the true life and growth of a city like Boston as commerce or manufactures; and for this reason I ardently hope that the entire magnificent scheme projected by you on the Back Bay lands, and which you have at various times so eloquently advocated before the Legislature, may be speedily carried out. Should this be the case, Boston, depend upon it, will hail you as her greatest benefactor, for it would confer upon her untold blessings and honour in all time to come, and not only upon her but upon every village and city in the Commonwealth. For myself, I am forced to write myself down an utter ignoramus in matters of science, having only dabbled in a few standard works upon some of its main branches. But notwithstanding I can say this much, that ever since when quite a young man, I received from the hand of the celebrated Cuvier a ticket to attend his lectures at the Jardin des Plantes, and tired my eyes with looking at the collections gathered there, I have been deeply impressed with the inestimable worth of natural science to mankind. Indeed, I may say the impressions of power, beauty, variety, adaptation, contrivance and vastness of resource derived from that casual survey, though it may have done nothing for me in respect to scientific views, did more to instruct and enlarge my mind in a general way in relation to this globe of ours and its great Author than almost any other single circumstance in my experience.

It is high time, my friend, that our civilization should take on a more thorough and comprehensive form. If we need schools and colleges, we need uni-
versities and institutions of science much more. If the educated men of this country design to retain the position and influence in its affairs which naturally belong to them, they must begin to level up, and not down.

Wishing you and your co-labourers full success in your noble project, and begging you to accept the enclosed check for $1,000 in aid of it, I remain, my dear sir,

Your much obliged friend,

HENRY B. ROGERS.

Should you write, address me "Care of U. S. Sanitary Commission."

It appears from the foregoing and from letters of a later date that this sum was intended for the Natural History Society; the same amount was given later to the Institute of Technology by the same generous friend.

FROM HIS BROTHER HENRY.

EDWARDS'S HOTEL, 12 A GEORGE STREET,
HANOVER SQUARE, LONDON, April 4, 1862.

. . . About a week ago I was one of a deputation under Mr. Cyrus Field to wait on Lord Palmerston, urging on the British government to assist in a renewal of the attempt to connect England and America by electric telegraph. Field has returned to the United States after setting the matter in a good train. I think it likely this government will allow another expedition to sound the Atlantic bottom as a preliminary.

The remarkable rencontre between the Merrimac and Monitor excites intense interest here, and is calling forth much commendation of American ingenuity and inventiveness.

The most interesting topic of all, of the day, is a late act of benevolence by Mr. Peabody the American banker. He gives £150,000 towards bettering the moral condition of the labouring classes. It calls forth universal approbation, and is doing almost as
much as the lately sanguinary conflicts by land and sea at home to inspire a tone of respect towards the people of the United States.

The "one year" allowed by the Act of Incorporation (approved April 10, 1861) for the raising of the sum of $100,000 as a guarantee fund for the Massachusetts Institute of Technology had now nearly expired. The following letter gives evidence of the anxiety of Mr. Rogers in regard to the matter:

March 29, 1862.

TO JOHN A. LOWELL, ESQ., TRUSTEE OF THE LOWELL INSTITUTE.

My dear Sir, — When I had the pleasure of consulting you some days ago in regard to the by-laws of the Institute of Technology, I alluded to the necessity of an early action of the Institute, either to comply with the condition of the legislative grant, or to obtain the indulgence of an additional year for the purpose. We have delayed taking any steps towards the latter object in the hope that possibly we might be spared the necessity of an appeal to the Legislature, which, as you know, is never exempt from uncertainty.

We are required "within one year after the passage of the Act to furnish satisfactory evidence to the Governor and Council that the Institute has funds subscribed or otherwise guaranteed for the prosecution of its objects, to an amount of at least one hundred thousand dollars." Although from the state of public affairs we have made little progress in the way of an actual subscription of funds for present use, we think that perhaps the prospective means, to which we may be able to refer, might, by a liberal interpretation, be admitted as fulfilling the conditions of the grant.

We are authorized by Mr. Ralph Huntington to state that in his will he provides the sum of $50,000 to be given to the Institute, and I would add that from the interest shown by him and his daughter in
our plans we believe he will be disposed to anticipate his will in aid of our building, although as yet he is not prepared to make a provision for our immediate use.

Should you be inclined to carry out the munificent purpose which you intended last year in regard to our school of industrial science by permitting us to state that you are prepared to appropriate to the active uses of the proposed school the annual amount to which you referred on that occasion, we think that this assurance, together with the prospective gift from Mr. Huntington, would be accepted by the Governor and Council as a substantial compliance with the condition of the legislative Act. Allow me to ask if it will be consistent with your plans to do this?

I think I mentioned to you that the building for the Natural History Society has been commenced, and there is no doubt that ample means will be at command for its completion. The efforts in its behalf, in which I and other friends of the Institute have taken part, have prevented our progress in obtaining subscriptions for the Institute; but already, without solicitation, several thousand dollars have been given, and from the general interest which has been shown in its progress, I feel quite hopeful that in the course of the year we shall be prepared to commence a building for the School of Industrial Science.

Mr. Lowell's reply is of especial interest not only intrinsically, but as marking the formal beginning of those friendly and mutually helpful relations which have ever since existed between the Lowell Institute and the Massachusetts Institute of Technology.

FROM JOHN A. LOWELL, ESQ.

Boston, April 2, 1862.

My dear Sir,—It has long been my intention, when the funds of the Lowell Institute should have sufficiently accumulated, to establish a school for the
instruction of mechanics in the sciences connected with their trades. Should your Institute of Technology be successfully established, I shall avail myself of its advantages, if permitted, by opening this school on their premises, and devote to this object a sum not less than $3,000 a year.

I am, yours sincerely,

J. A. Lowell.

If an application was to be made to the Legislature for an extension, as now appeared inevitable, there was no time to be lost. Accordingly the following calls for the necessary meetings were immediately issued:

Boston, April 4, 1862.

The members of the Massachusetts Institute of Technology are requested to meet on Tuesday, the 8th inst., at 11 A. M., at the Rooms of the Board of Trade, Merchants' Exchange Building, for the purpose of accepting the charter, adopting by-laws, appointing officers, and taking such other steps as may be thought necessary for the active organization of the Institute.

The great importance of the business prepared for the meeting will, it is hoped, secure a full attendance of all who have signified their desire to coöperate in the objects of the Institute.

By order of the Committee,

William B. Rogers,
Chairman.

Boston, April 4, 1862.

The Committee of Twenty appointed to frame a Constitution and By-laws for the Massachusetts Institute of Technology is requested to meet on Tuesday, the 8th inst., at 10 A. M., at the Rooms of the Board of Trade, Merchants' Exchange Building, for the purpose of considering a report on this subject by the sub-committee, preparatory to the permanent organization of the Institute.
As a member of the Committee and one of the corporators, it is earnestly hoped that you will find it convenient to attend.

WILLIAM B. ROGERS,
Chairman of Committee.

If it seem surprising that formal organization had not been consummated earlier than this, it need only be said that the outbreak of the war had appeared to make delays imperative. The time was obviously most unfavorable for the launching of a novel enterprise in education. The Institute, however, was already making stanch friends.

FROM RALPH HUNTINGTON, ESQ.

BOSTON, April 7, 1862.

DEAR SIR,—It has given me great pleasure to learn of the present encouraging prospects of the Massachusetts Institute of Technology, in which you and your associates have taken so deep an interest.

As you have particularly requested me in your polite note of Saturday, it may not perhaps be considered obtrusive for me to state that it has been my purpose to make some provision in my will which should manifest my interest in the welfare of the Institution.

From provision already made, I think the Institute may reasonably expect to receive from my estate at some time the sum of $50,000, $20,000 at my decease, and the remainder at a subsequent period, should the continued usefulness of the enterprise be then apparent to my trustees.

With great respect and esteem,
Very truly yours,
RALPH HUNTINGTON.

The Committee of Twenty (which was in reality a committee of twenty-one, Mr. Rogers having been
added to it as Chairman) had been appointed by the meeting of January 11, 1861. It now met, pursuant to the call of the Chairman, at 10 o’clock on April 8, 1862, the entire Institute (as then constituted) meeting at 11 A.M. on the same day. The charter was formally accepted, a new organization was effected, by-laws were adopted, officers chosen, and the first annual meeting was appointed for May 6, 1862. It was also voted to petition the Legislature for an extension of time. The formal application was made by Mr. Rogers, as President of the Institute.

Boston, April 9, 1862.

TO HIS EXCELLENCY THE GOVERNOR AND THE HONORABLE THE COUNCIL OF THE COMMONWEALTH OF MASSACHUSETTS:

Gentlemen,—Having found in a conference with some of the members of your honourable body that the prospective contributions, amounting to upwards of $100,000, on which the Massachusetts Institute of Technology had relied for complying with the conditions of the Act of April 10, 1861, relating to the Institute, would probably be considered by your honourable body as not presenting the requisite guarantees, the Institute, at a meeting held April 8, 1862, passed the following Resolves:—

“Resolved, That the members of the Institute are greatly cheered by the fact that, notwithstanding the engrossing claims of the public interests and the anxieties attendant upon the state of the country, they have received the assurance of a prospective fund of upwards of $100,000 for the future use of the Institute.

“Resolved, That the government of the Institute be directed forthwith to memorialize the Legislature to the effect that as this prospective contribution is not in a shape to comply literally with the conditions of
the Law of April 10, 1861, relating to the Institute, an additional year may be allowed them for complying in this respect with the conditions of the legislative grant."

I beg to add that a petition to the effect above stated has been presented to the Legislature.

Trusting that our action in the premises will meet with the approbation of your honourable body, I have the honour to remain,

With the highest respect,

Yours, etc.,

WILLIAM B. ROGERS,
President, Massachusetts Institute of Technology.

TO HENRY BROMFIELD ROGERS, ESQ.

1 TEMPLE PLACE, April 9, 1862.

MY DEAR SIR,—In the list of officers of the Institute of Technology appointed at the meeting for organization held yesterday, you will see your name on the Committee of Instruction. At the first annual meeting, to be held next month, the same list will be renominated to serve for the ensuing year.

The daily papers give a tolerably correct account of the proceedings at yesterday's meeting, together with a list of the members of the government. I regret that your absence deprived me of the advantage of consulting you in regard to some of the details. But having once made a beginning, it will be easy from time to time to adapt our organization more completely to our objects and wants.

The Constitution and By-laws of the Institute have as yet only been printed on slips, but as soon as they have been prepared in pamphlet form I will send you a copy.

I trust you will pardon me for placing your name in the government without consulting you. The Committee on Instruction will for some time have nothing to do further than their general share in the govern-
ment. By and by I hope we shall have the pleasant task of planning and organizing "the School of Industrial Science."

TO HIS BROTHER HENRY.

Boston, April 16, 1862.

I sat down to write you more than an hour ago, but have been so delayed by visitors that I shall be compelled to abridge what I have to say. My last visitor was Bennett Forbes, who is interested in the construction of iron-clad gunboats, and is experimenting on the firing of submerged guns. Of course, invention is now very active in the war direction, and every day discloses some new scheme for defence or destruction. . . .

Our hearts are most earnestly directed to Banks's Division, as it slowly makes its way up the valley of the Shenandoah. James writes in the brightest spirits, says his men have stood fire without flinching; and, indeed, all we hear of the Second and other Massachusetts regiments there is greatly to their credit as brave and well-disciplined soldiers. . . .

Have any of your friends been repeating Plateau's beautiful experiments on liquid films? I had more than a year ago reached many of his results. The optical phenomena of coloured bands, which I got with a circular film of eight inches diameter in a vertical position, are the most superb I have ever seen. No glasses or other apparatus previously used are at all comparable to them. . . .

Dr. Ruschenberger is now stationed at the Charleston Navy Yard, and I have taken him to the Club, and we have had him and his family to dine. He is a good fellow, and a strong friend of us all. . . .

Under date of April 19, 1862, Mr. Rogers was formally notified of his election to the first presidency of the Massachusetts Institute of Technology. Up to

1 Surgeon in U. S. Navy. See vol. i., chap. i.
April 8, 1862, he had been "Chairman of the Committee of Twenty," having been added as such to that Committee on January 11, 1861. (See p. 62.) His formal notification was as follows:—

**FROM JOHN D. RUNKLE.**

**Boston, April 19, 1862.**

**TO PROFESSOR W. B. ROGERS:**

Sir,—I have the honour to inform you that at a meeting of the Massachusetts Institute of Technology, held at the Rooms of the Board of Trade on Tuesday, April 8, 1862, you were elected a member of the government of the Institute in the capacity of President of the Massachusetts Institute of Technology, to serve until the First Annual Meeting, on Tuesday, the 6th of May next; when, in conformity with the By-laws, the Government for the ensuing year will be elected.

I take this occasion to notify you that a meeting of the Government will be held on Tuesday, the 22d inst., at 10 A. M., at the Rooms of the Board of Trade.

Yours respectfully,

J. D. RUNKLE,

*Secretary pro tem.*

**TO HIS BROTHER HENRY.**

**Boston, April 28, 1862.**

I thank you for the trouble you have taken to visit the meter-makers in London, and make the inquiries of which you speak in your last letter. In the autumn, before I had fairly organized my meter inspection, I felt desirous of learning the details of the English methods. But I have since made myself entirely familiar with what is doing on the subject abroad, and have brought into successful operation a system of examination which I consider in many respects more accurate and convenient.

I have a standard cubic foot constructed under my
direction by Ritchie, in which the nicest precautions have been used as to temperature and weighing. On comparison with an exchequer cubic foot bottle with Airy's stamp, now in possession of the gas company, I found that the difference was not more than 1/4000th, due probably to the difference in the wetting of the interior. With this I have gauged and regraduated all the gas holders in the State, and among them not a few of the make of Mr. Glover, which were less accurate than they were claimed to be. For my testing, a test meter is far too imperfect an apparatus, and I am inducing the small companies to provide small gas holders of a construction I have devised, to replace them. The large companies are required by law to have a large holder proved and sealed by the Inspector.

By using air instead of gas I am able to secure a perfect equality of temperature of the water and air of the holder, and the air, as it passes through the meter. A delicate thermometer of Green's construction plunged in the holder, and another of the same kind in the tube through which the stream escapes from the meter, enable me to compare these temperatures, and I admit no observation in which the difference exceeds 1°. A difference of 5° will make 1 per cent. difference in registration between the holder and meter. I have taught all the meter-makers and gas men here to understand this, and they are universally employing my methods. Indeed, in New York and Albany the accuracy of my inspection is so regarded that the leading manufacturers are adopting my methods and standards.

The meter measures I consider to be very thoroughly organized, and I am now working at the photometry and chemistry of gas. I have just completed an apparatus by which I can note the weight of the candle by minutes, while it is burning, and at the same time compare the gas flame with it. I find many irregularities, showing that even with the best
candle the amount of light in successive minutes is far from being proportionate to the amount of sperm consumed; yet this you know is the basis of all computations of candle power. . . . I am also getting up various little contrivances to facilitate the testing for carbonic acid and the bromine test, etc. But enough of this matter. I shall make a tour of gas inspection between now and the end of June; and if I can bring all parts of the inspection into a satisfactory state, I think I shall ask the Governor to look out for some one to take my place.

You have no doubt seen in the "Daily Advertiser" some notice of the organization of the Institute of Technology. We have our first annual meeting on May 6, when our constitution and by-laws will be fairly in operation, and our society meetings will be in regular train. They have made me President, and among the Vice-presidents are John A. Lowell and Dr. Jacob Bigelow, the former because of the aid he proposes to give to the educational department, and the latter as an early writer on Technology.

To-day we have the news of the capture of New Orleans. Perhaps the report is premature, but the result will happen very soon, if it has not already. The whole of the Gulf is now probably in our possession. . . . Our friend Mitchell, the astronomer, has displayed his usual energy and dashing spirit in advancing into northern Alabama, and taking possession of the most important railroads through which Beauregard has been receiving reinforcements for his army at Corinth. The soldiers call him "Old Stars." His success has been brilliant.

I have lately witnessed some very striking experiments upon the firing of large shot and shell under water. All the engineers pronounced it impossible without bursting the cannon. But I saw 12 lb. shot driven through 12 ft. of water, penetrating a wooden target to the depth of 20 inches, and the gun unharmed. Say nothing of this at present. You would
be amused at the number and variety of controversies that are daily brought forward in connection with projectiles, armour and vessels. Within six months I think we shall have afloat the most formidable and invulnerable navy in the world, unless the English and French do something far better than they have yet done in this way. But is it not sad to think that the barbarism of war should form so prominent a feature of what we call civilization? . . .

On May 6, 1862, was held the first annual meeting of the Massachusetts Institute of Technology, and the following officers were chosen:

OFFICERS OF THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY,
For the Year 1862–63.

President. — William B. Rogers.
Secretary. — Thomas H. Webb.
Treasurer. — Charles H. Dalton.
Committee on Publication. — J. D. Runkle, Lorenzo Sabine, C. L. Flint, George B. Emerson, J. C. Hoadley.
Committee on Finance. — M. D. Ross, Edward Atkinson, James M. Beebe, E. S. Tobey, N. H. Eldridge.

A report of this meeting in the handwriting of Mr.
Rogers is still extant, and appeared in the Boston "Transcript" of May 14, 1862:—

**Massachusetts Institute of Technology.**—The first annual meeting of the Institute was held on Tuesday, May 6, at the Rooms of the Board of Trade, Professor Rogers in the chair. The officers and government, chosen at the preliminary meeting four weeks before, were re-elected to serve for the ensuing year. Among the items of business transacted, were the acceptance of the amendment to the Act of Incorporation, granting the Institute an additional year for raising the prescribed fund, and the adoption of measures for securing a hall for the regular meetings, hereafter to be held on Tuesday evenings once every two weeks.

In the course of the proceedings, the Treasurer, Mr. C. H. Dalton, made the gratifying announcement that he had recently received from the Hon. William Minot, as trustee of the estate of the late Miss Sarah Townsend, the sum of three thousand dollars for the use of the Institute.

It is satisfactory to know that the Institute is duly organized, and that it is zealously endeavouring to bring into operation its threefold plan of a Society of Arts, a School of Industrial Science and a Museum of Technology. As a Society of Arts, it is expected that its meetings will elicit much useful information and discussion on subjects of practical and industrial science, including a multitude of topics of interest to the general public, as well as to the manufacturer, mechanic, engineer, merchant and farmer.

These meetings will, doubtless, in process of time, become an accepted medium for the communication of new ideas and applications in the practical sciences, whether originating at home or abroad, and by the stimulus as well as by the information they impart, cannot fail to cooperate with the other departments of the Institute in guiding and elevating our industrial pursuits.
Already, as stated, funds had begun to come in for the new enterprise.

TO WILLIAM MINOT, ESQ.

TEMPLE PLACE, May 9, 1862.

MY DEAR SIR,—By a vote of the Massachusetts Institute of Technology, passed at their first annual meeting on Tuesday, the 6th inst., I have been directed to tender you their heartiest thanks for the gift of three thousand dollars from the estate of Miss Townsend, which you have been pleased to appropriate to the Institute.

Allow me to add that, dating from the time of your first proposal to make the donation, this is the earliest contribution offered to the Institute, and as such will stand first on our records, claiming an especially grateful remembrance from all who are interested in our enterprise. It gives me peculiar pleasure to associate the name of one whom I so much respect with this earliest encouragement of our labours.

With best wishes and regards, I remain,

Most truly yours,

WILLIAM B. ROGERS,

President Massachusetts Institute of Technology.

But yet the war was the all-absorbing topic. The following paragraph in a letter of this period from Mr. Rogers, read more than thirty years after, seems prophetic:—

"By the close of the war there will devolve on the free States a stupendous labour of organization and education, not only for the blacks, but for a large part of the white population of the South. There is no idea of a subjugation, as other nations understand the term. But to overcome prejudice, to relieve suffering, and to enlighten ignorance throughout the desolated slave States will be the labour of more than the present generation, and will tax the nation's highest capacity of moral effort and of financial endurance."
TO CAPTAIN JAMES SAVAGE.

1 Temple Place, June 9, 9 P.M., 1862.

MY DEAR JIM,—I came down from Sunny Hill by the evening train, leaving all the family in our lovely country home, now looking as beautiful as the richest verdure of grass and leaf can make it. Father and the rest went up on Friday, and I followed on Saturday afternoon. Yesterday we were imprisoned by a cold northeast storm, but the sunny brightness of to-day has repaid us by giving to our view the richest beauty of the landscape which we all so dearly love.

That admirable letter of yours describing in detail the incidents of your perilous but heroic retreat reached father on Friday morning, and, as you may imagine, has been the chief reading for the family ever since. It is by far the clearest and most compact narrative I have anywhere seen of the event of that grand Parthian march, for although it relates almost entirely to the action of your own immediate command, it gives a picture so graphic and real that we can well fill up the scene to embrace the whole of the retreating column.

At times, as you say, the excitement must have been "splendid;" but it made our hearts tremble to read of the imminent peril in which you were placed, especially at the moment before beginning your retreat down the hill from behind that stone wall; and then what almost superhuman efforts were called for in the long march after all these exhausting and fearful exposures!! My dear Jim, if you could only have been with us when that letter was read, you would have felt that it is a fearful thing to be so much loved, for we should have smothered you in affectionate congratulations and in exulting joy over your safety and your heroism. . . . You will be glad to hear some-

1 Retreat of Banks's division, or Battle of Winchester (see General Gordon's Camp Andrew to Cedar Mountain).
thing of Sunny Hill. To begin, the season has been most favourable, and grass, shrubbery, vegetables, flowers and green-house are all in the best of order and more beautiful than ever. Marshall has extended the green-house to more than double its length, and makes a good show of early cucumbers, of grape-vines in pots, and of various flowers. The seedling chestnuts and oaks are nearly in heavy leaf and in full vigour, rejoicing now in the new flag which yesterday morning I raised over them on receipt of the news of the days on the Mississippi and the capture of Memphis. . . .

TO HIS BROTHER HENRY.

Sunny Hill, June 22, 1862.

. . . As was expected, James has been made a Major, and has thus succeeded to the honours of the old colonial founder of the family, Major Thomas Savage, who, more than two hundred years ago, led the little Puritan army against the Indians. You can imagine the satisfaction of his father, as well as of the rest of us.

The solicitude you express as to the future financial embarrassment which may result from the war is not greater than every one here would feel, were we not quite sure that the amplest provision is to be made in the way of taxes, to sustain the public credit. On this point there has never been a moment's hesitation, and the only cause of delay in the passage of the Tax Bill has been the immense multitude of its details, requiring study and repeated revisions. The whole public is of one mind as to its necessity on the amplest scale, and our friends in Europe may rest assured that its demands will be met everywhere in the free States without a murmur.

Thus far the predictions of the "Times," and other prophets of evil, have been mere political nightmares. The free States exhibit, in general, almost the usual activity in the pursuits of industry and trade. The
streets and shops of the cities are thronged, the railroads are busy, and most of the mills are occupied. It is, indeed, an amazing evidence of the national energy to see the country thus active in all the works of peace, while maintaining an army of half a million of soldiers in the field. But, if needed, I do not doubt that we shall be prepared to continue this exertion of energy and sacrifice for another campaign, or even longer.

Lord Brougham's anti-democratic speech surprised and disappointed me. He, I thought, was one of those who knew something of our institutions and of the quality of our people. It is sad to find that the spirit, so hopeful of humanity, which was thought characteristic of Henry Brougham when a Commoner, should, by years of aristocratic experiences, have been volatilized to leave the poor caput mortuum of which this speech is a specimen. You may smile at my chemical figures, but I know you will think that they do not misrepresent such a sad dereliction from the cause of human liberty and progress. . . . I have no very recent letters from Philadelphia. Two weeks ago Robert and Fanny were as well as usual. We hope to have them with us at Sunny Hill for a time this summer. . . .

I rejoice to find that you take such pleasure in your teachings in comparative anatomy and zoology.

TO MAJOR SAVAGE.

LUNENBURG, July 6, 1862.

MY DEAR JIM,—Yours of the 22d is the last we have received. Much joy did it bring in the impression it gives of your good health, and deeply did it touch our hearts by the story of the gallant bugler,1 to whom you made the beautiful gift of flowers, suggestive to him as to you of gentle home delights and affections. Oh, when will the love of what is true and

1 Referring to a German bugler, of the Eighth New York, lying wounded at the hospital in Winchester.
good so rule the world that there shall be an end of
wars! The time is not yet surely, and so by the
sword even, must the great interests of humanity be
protected, until the higher civilization shall make real
the fraternity of mankind.

. . . Robert is busy in one of the great Philadel-
phia army hospitals, and happy will be the poor sick
and wounded on whom shall fall the benediction of
his helpful sympathy. . . .

God bless you, Jim.

From your loving brother,

"Bill."

TO HIS BROTHER HENRY.

BOSTON, July 8, 1862.

. . . A week ago Jim was at Winchester, in com-
mand of the guarding force. We have no knowledge
of the plans of the new commander, General Pope;
but possibly he may have in view a movement across
the country towards Richmond. . . .

I have been reading Huxley's address to the Geo-
logical Society. Parts of it must have proved very
startling to palæontologists present. Some Western
geologists are tracing the New York Chemung rocks
far westward, and think they have proved them to
pass into rocks replete with carboniferous fossils.

You must not, my dear Henry, allow any of your
friends to doubt the success of the cause of freedom
in the United States. Even foreign intervention,
though it might put back the result, cannot prevent
its final attainment. . . .

TO MAJOR SAVAGE.

1 TEMPLE PLACE, July 22, 1862.

MY DEAR JIM,—I found your most welcome let-
ter awaiting me at Sunny Hill on Friday night, and
upon my return to town on Monday I was not a little
moved by pleasant, loving and anxious thoughts at
the sight of your battered trunk and your sword (captain's), still well protected by its leather covering. I have placed them both in your chamber. How my heart would leap, my dear fellow, to see the face of their owner. But some of these days we shall have that joy, and then there will be a gladness in the household not known since our dear soldier left us.

Father and I spent Saturday in a pleasant visit to Mr. Thayer in Lancaster, where, besides enjoying the sight of the beautiful mansion and grounds, and a drive over the hill, we had a cozy, hospitable dinner.

God bless you, my dear Jim; write often to Your loving brother, "Bill."

TO HIS BROTHER HENRY.

Sunny Hill, July 28, 1862.

I came up from town on Friday evening to enjoy the delicious quiet and rest of the country for several successive days, and shall not return to Boston until to-morrow morning. My desire to promote the rapid enlistment of volunteers to comply with the last requisition of the President led me to tax my voice in a speech on the Common last Thursday, and the next morning I found myself so hoarse from relaxation of the vocal chords as to admonish me of the necessity of rest. It has given me very little trouble and no concern, and has now almost entirely disappeared. I only mention the circumstance as an indication of the earnestness with which every one is labouring to reinforce our armies, and to put even more vigour into the war than we have yet devoted to it. The additional 300,000 will be raised without drafting, unless, perhaps, in a very few places; but a more instant promptness would have been everywhere displayed, at least in the New England States, had the views of some of our military and other leaders as to the conduct of the war been more decided and vigorous. The "peculiar institution," through the mistaken policy
of our government, has proved a great source of power to the rebels, instead of becoming, as was expected, a cause of embarrassment and weakness. Until of late we have allowed them all the advantage of having their lands tilled and their fortifications erected, and, indeed, all the physical labour of the contest performed, fighting excepted, by the slaves, while the able-bodied whites were all marshalled in their armies with strength husbanded for the battle; and we, meantime, repelling the proffered aid of the poor fugitives, and even returning them to their rebel owners, have insisted on digging our own trenches and dragging our cannon beneath the hot sun, and in the malarious air of Southern swamps and morasses. But we have, I trust, done with throwing grass and loading our guns with sawdust. No more of our brave fellows are to be sacrificed to a polite regard for the prejudices of the enemy. The negroes will now be welcomed to help us with their muscles, if not with weapons of battle, and whenever they come to us will be greeted as freemen nevermore to be remanded to their fetters. Had such measures been early adopted as the policy of the war, we should have seen the full triumph of freedom long ago.

You will see by General Pope’s several proclamations that he is resolved upon a campaign of the most vigorous activity. McClellan will probably attempt no offensive action for some weeks. His engineering genius has interfered, I apprehend, with his success. In playing the regular game on the military chess-board he has been foiled by, perhaps, inferior but more dashing and desperate antagonists. Still on the whole the progress of the federal armies for the last eight months has been very great; and this check at Richmond, by calling additional forces from the North, and by securing a more decided and vigorous war policy, will tend more effectually to bring the contest to a successful close.

In a long letter received some days ago, our dear
brother Robert gives interesting particulars about the
great new hospital for the army with which he is
connected. It is in West Philadelphia, and will be
arranged to accommodate upwards of two thousand
patients, the whole to be under the direction of Dr.
Hayes, Robert to have the charge of one of the
wards. He expects to be able, with Fanny, to make
us a visit in Lunenburg some time in September.

But little is doing in science among us, though you
will see from Silliman's last number that we are not
quite idle. A paper of Wyman's will interest you
particularly, giving an account of some excellent
experiments on the generation of living forms in cir-
cumstances very favourable to the doctrine of sponta-
neous development. . . .

We have no very recent news from the Major.
His last letter was dated from the camp near War-
renton. Major Copeland,1 lately from the camp, told
me on Thursday that he left Jim some days before
in perfect health and admirable spirits. . . . The de-
mand for labour in the country, and even in many of
the mills, is an obstacle to rapid recruiting. . . .

TO PROFESSOR C. C. JEWETT.2

1 Temple Place, August 7, 1862.

. . . The times are not favourable for much prog-
ress in our enterprises, but we are not disheartened.
The patriotism that is now so generously devoting
itself to the safety of the nation and the promotion of
liberty must ere long be released from its most urgent
public duties, and be ready with deeper earnestness
than ever to build up the peaceful structures of edu-
cation and the arts.

My duties allow me but little time for the beautiful
home at Lunenburg, but the day or two which I
pass there every week serves to keep me in my usual,
though not robust, working order.

1 R. Morris Copeland, Adjutant on the staff of General Banks.
2 Librarian of Smithsonian Institution in 1848; Superintendent of
Boston Public Library, 1858 to 1868.
On August 9, 1862, Professor Rogers’s brother-in-law, Major Savage, was severely wounded at the battle of Cedar Mountain. The news came while Mr. Rogers was absent from Sunny Hill on a tour of gas inspection and, without returning home, he immediately went to Boston and started for the front. Arriving there accompanied by his brother Robert, after many difficulties, he found that Major Savage and Captain Henry S. Russell, who had stopped to bind up his friend’s wounds, had been made prisoners, and that Major Savage had been sent to the Confederate hospital in Charlottesville, the seat of the University of Virginia. Mr. Rogers, finding it impossible to reach Charlottesville, returned home. Meanwhile Captain Russell had been transferred to Libby Prison in Richmond.

TO HIS BROTHER HENRY.

1 Temple Place, Boston,
August 22, 1862.

I returned on Monday night from my visit to Washington, Culpepper, and the battlefield near Cedar Mountain, where so many of our Second Regiment were killed or wounded. From officers and men I gathered every particular relating to James’s disaster, and returned with the certain conviction that the dear fellow was wounded in an arm or leg, and taken prisoner. His devoted friend, Harry Russell, while tying a handkerchief around James’s bleeding leg, was himself taken, and is now a prisoner in Richmond, whence he has written to his uncle, Howland Shaw, confirming the statement above given. James’s wounds are not supposed by any one to be dangerous, and Russell alludes to them as in his opinion not severe. The devotion of this noble fellow in staying to staunch a rapidly bleeding wound probably saved James’s life, though it has subjected Russell to the wretched-
ness of a Richmond prison. We have, as yet, heard nothing from James or from Samuel Quincy, who, being also wounded, though slightly, and a prisoner, is probably in the same hospital. Most likely they are at the University, now used as a hospital, or perhaps at Gordonsville. Before the close of next week we may count pretty certainly on hearing directly from one of them.

While in Washington I wrote a number of open letters to be sent by flag of truce from Fortress Monroe to influential old friends and physicians in Richmond and Charlottesville, in the hope that they might exert themselves to better the condition of the wounded prisoners. . . . We now look almost confidently to having Jamie back with us not seriously the worse for his injuries. But alas, many of his young companions fell never to be restored: Captains Carey, Abbot, Goodwin and Williams, and Lieutenant Stephen Perkins, all educated gentlemen full of youthful energy and promise, met their death on that fatal field.

My visit to the field gave me a view of Bull Run, Manassas and other scenes of blood, and of the desolation which blasts this region in which the dreadful drama of war is enacted. It also showed me the magnitude of our preparations made and making for the prosecution of the contest. . . . The public mind has become more strongly impressed with the necessity of making the war one in which slavery is to be sternly dealt with instead of being, as at first, petted and indulged. At the close of the war that oligarchy which has ruled and well-nigh demoralized the nation will be no more.

FROM HIS BROTHER ROBERT.

1121 Girard Street, September 5, 1862.

. . . Besides my ward I have a large camp of tents to attend to. The population within our enclosure is

1 Captain Quincy was also taken to Libby Prison.
little short of 3,000 sick and wounded. We are getting along very smoothly with the task, and indeed, for my own part, I feel it to be no task, but daily find my interest and satisfaction in the work to increase. The inmates, those who are not permanently disabled, show remarkable improvement under the influences of pure air and careful treatment. . . . How doubly happy should I have been had our errand only enabled us to bring dear James back with us. . . .

FROM HIS BROTHER HENRY.

28 Charlotte Square, Edinburgh, September 13, 1862.

. . . For a while, Eliza and I could not refrain from engrossing ourselves overmuch with details of American war news, but of late it has had an unwholesome fascination. We are wise enough, however, generally to refrain from reading the British newspapers, most of which are so very perversely detraactive of the federal cause and efforts, and content ourselves with studying the columns of the "Daily Advertiser" and other American papers which, once a week or oftener, come to us.

TO HIS BROTHER HENRY.

1 Temple Place, Boston, September 5, 1862.

James, in a few lines written with the left hand, says that our "friends at the University leave nothing to be desired," and my old friend Jefferson Randolph adds a postscript promising to give us news of James once a week. Thus a heavy load of anxiety has been lifted from our hearts in regard to James . . .

Do not imagine that there is any despondency or apprehension in the North as to the final success of our cause. There have been many grievous mistakes committed by our leaders; and the ill-omened campaign of McClellan in the malarious region in which
he saw fit to coop-up his splendid army last spring, may be regarded as the source of all the late reverses. But hereafter such blunders will not be repeated. . . .

September 26, 1862.

. . . How soon we are to renew the advance southward I know not, but I suppose the pause will be a short one.

The great event since my last letter, the greatest event beyond comparison of the war, is the late proclamation of the President, declaring the slaves of all rebellious States after January next to be forever free. On the 22d of September this momentous voice was uttered. On that day in a sublimer sense than ever before — the sun crossed the line. . . .

LUNENBURG, October 13, 1862.

. . . The proclamation is cordially accepted by an immense majority in all the free States, and is strongly advocated in Maryland and Kentucky. I believe that its good fruits will be strikingly shown before many weeks. Indeed, already we see that it creates great uneasiness in the rebel army; for however little real danger there is of an extensive or a sanguinary insurrection, the mere thought that a revolt is made easier carries terror through the ranks, and makes the soldiers and officers anxious to be at home. What a grand step for humanity and for the prosperity of the nation will it prove, even should it secure no present further result than to free Maryland, Virginia and Kentucky, and this, I think, it certainly will do. . . .

I am just completing a portable photometer — with which I propose making an excursion this season to the principal gas works of the State — for comparative observations. The contrivances hitherto used for the purpose are very unreliable, but this will, I think, prove satisfactory. After making this round, and reporting what I have done to organize the inspection, I shall tender my resignation.
I came up to Sunny Hill on Saturday, 11th, and shall remain until all go to town next Friday, 17th, making the longest holiday I have taken for nearly eighteen months.

Have you seen Helmholtz since the meeting of the Association? I am anxious to know if he has recognized my labours in binocular vision. In a late number of "Poggendorff" I observe that Dr. Wundt is reproducing some of my last experiments in a modified form and my leading idea as to binocular union, without any reference to what I have done. The same is true also of the book on binocular vision published last year by Giraud-Teulon in Paris.

The Natural History building is now receiving its roof, and already presents quite an imposing appearance. I have just withdrawn from the Friday Club. A dinner lasting from 5 P. M. until 11 was too much for me, and last year I did not attend; neither health nor purse nor taste allowed me to remain.

FROM HIS BROTHER HENRY.

EDINBURGH, October 11, 1826.

Last evening I met Mr. Cobden at dinner at Mr. Duncan McLaren's, a former Lord Provost of Edinburgh. Cobden is all sound as to the right and wrong of the American struggle, but like very many of the North's best friends in Britain, thinks the federal cause has been mismanaged, and confesses himself unable to see how the country is to return to a settled tranquillity and prosperity. The President's Emancipation Proclamation is the theme in all circles, but none are able to foresee how it will operate. Many approve, some cavil, but few can predict its action either South or North.

I hope you will have received the "Caledonian Mercury," one of the few Scottish newspapers sound on the American cause. Kingsley's squib in it, hitting off the late discussion at Cambridge between
Huxley and Owen upon Man and Gorilla, etc., is extremely funny. To the uninitiated it was, I doubt not, a true Dundreary affair, but Huxley has manifestly had a thorough triumph over Owen. 

Please send me all the light you can give to penetrate the dark future, which every day augments my longing to see you. Surely one or other of us must cross the Atlantic within a year or two.

Morningside, Edinburgh, November 13, 1862.

. . . On reading a portion of your last letter to the editor of the "Caledonian Mercury," he liked so well the passage about the progress of the army that he asked permission to print it.

There is, I think, an obvious softening of tone towards the North in the British press of late. Palmerston is studiously silent. Almost daily rumours appear in the newspapers intimating an increasing likelihood of the offers of intervention by the Great Powers, but the public seem to view them as rumours only.

The distress of the non-employed in the manufacturing districts, especially Lancashire, is exciting deep sympathy and solicitude. A great meeting was held two nights since in Edinburgh. I refrain from attending crowds of any kind, finding them detrimental to my health, and not pleasant to my taste.

What think you of my essaying some four or half dozen lectures on America? not on its political crisis, but on its physical and industrial resources, as tending to show its capacity to recover from its present reverses, and as serving to enlighten the uninformed here as to the causes of conditions and events they cannot comprehend through the passing news they are receiving. A. Keith Johnston urges me to it strongly and thinks I may be successful, but I hesitate through a lack of courage, being so disheartened by the little sympathy I see extended to the country just now in

1 Scotch geographer and publisher.
any sense. I wish, however, very much for documentary materials toward such an enterprise. Do, dear William, endeavour to send me as soon as you can any digest you can get of the census of 1860.

On October 22 Major Savage died at the hospital in Charlottesville, where he had been most kindly cared for by the friends of Professor Rogers in the University of Virginia.

MR. ROGERS TO HIS BROTHER HENRY.

1 Temple Place, November 22, 1862.

. . . The heavy sorrow that has fallen on our home I must not speak of, for the thought of it would leave no room for other thoughts. . . .

Our new Natural History building on the Back Bay is now roofed in, and the workmen are engaged on the interior. It is a graceful and commanding structure, and in point of taste is generally commended.

TO PROFESSOR JAMES D. DANA.

1 Temple Place, Boston, November 30, 1862.

My dear Professor,—Accept my best thanks for the copy of your "Manual of Geology" received last night, and allow me, by proxy, to return the acknowledgments of my brother Henry for the same mark of your consideration, destined for him, which I shall forward by the earliest opportunity.

The concerns of the war, and home anxieties and griefs connected with it, have of late greatly encroached upon my time for scientific reading or work, but I need not say that I shall be eager to take up your beautiful volume for such careful and continuous reading as may be in my power. In a hasty glance at the illustrations, I have been struck with their variety and artistic excellence.
I rejoice at such evidence of your restored health, and with best wishes for its continuance I remain,

Very sincerely yours,

WILLIAM B. ROGERS.

FROM HIS BROTHER, DR. ROBERT ROGERS.

Saturday, December 6, 1862.

My lectures cost me no more labour than the preparation of experiments, while my hospital duties are now well systematized and consume time but give me little anxiety. Having abandoned the tent arrangement, which you saw, Dr. Hayes has transferred all the patients to the house. My ward has, therefore, been full since September, numbering sixty patients. I have much satisfaction in the work in finding so many to improve under my care. You would be amazed to see the contrast between the appearance of some of the poor fellows within the interval of two or three months, utterly broken down as they were, and now ready to return to their regiments. The hospital is undergoing considerable enlargement, and in a few weeks will be in readiness for housing 3,500 patients. . . .

TO HIS BROTHER HENRY.

1 Temple Place, December 9, 1862.

. . . The nieces are well, and are very cheerful and kind to E. and her father, helping greatly to brighten our home, on which so dark a shadow has been cast.

By a letter from Robert, received this morning, I learn that he and Fanny are well. He is taking great interest in his hospital duties, and is, I know, doing vast good by his humanity as well as skill. Some time ago one of his former soldier patients called to see me, and with tears and a choking voice spoke of the kindness of the "dear doctor" to him while he was confined in the hospital under his care. God bless
his generous, noble heart! What a joy it would be, my dear Henry, could we three meet together for a time! When the war is over, this surely must be our effort as early as possible.

I believe I mentioned in a former letter the death of your old acquaintance, Dr. Benjamin Green. He has left his splendid botanical library and about $10,000 to the Natural History Society. His great herbarium he gave them some years ago.

On December 17, 1862, was held the first public meeting of the Massachusetts Institute of Technology, in its function as a scientific institution. The meeting was of only one, however, of the coördinate branches; namely, of the “Society of Arts;” the “Polytechnic College,” or “School of Industrial Science” not yet having been organized. A full account of the proceedings of the first meeting appeared in the “ Transcript” of March 4, 1863. President Rogers occupied the chair and made an introductory address, of which the following passages may be quoted:

“In the midst of the sad trials in which so many are called to participate, and in spite of the ever-present cares and claims of the war, we have daily proofs that New England, and especially Massachusetts, will continue with unabated zeal to urge forward the peaceful enterprises of education and humanity, nor can we doubt that the great practical object of educating and elevating our industry will command its hearty and helpful sympathy.

“In its meeting as a Society of Arts, twice in every month, the Institute will have in view, as its leading object, the promotion of the practical arts and sciences through the medium of written and oral reports and communications and the exhibition of models, materials, products and other objects relating
to them, as well as through explanations, descriptions and criticisms to which they may give rise. Aiming to secure a free communication and interchange of valuable thoughts on all matters relating to the industrial sciences and arts, it will desire to guide as well as to stimulate research and invention, and, while marshalling in emulous and coöperative labour the cultivators of the applied sciences and the arts among us, will offer them an appropriate theatre for the exhibition of their researches or their handiwork, and will, it is hoped, after a time, furnish also a suitable medium of publication in the journal which forms one of the features of our general plan.

"The present accommodations are amply sufficient for our immediate purposes as a Society of Arts, and nothing is needed for the success of this branch of the Institute but that members and friends shall contribute from their stores of knowledge and invention whatever may give value and interest to the meetings in this hall. From the mill, the farm, the machine shop, the laboratory, the shipyard, from the desk of the engineer and architect, the chair of science, the workman's bench, the merchant's counting-room and all the other scenes where educated industry is at work, we may claim and expect the aid of vigorous thought and coöperative labour; and knowing how mighty is the momentum of the industrial intelligence around us, we can scarcely doubt that the efforts of this branch of the Institute will prove of substantial public interest and advantage. . . .

"But let it not be supposed that in improving our opportunity of usefulness in the capacity of a Society of Arts, we are in any way withdrawing our interest from the other and more important branches, the proposed School of Industrial Science and the Museum of Practical Arts. These, it is true, can be carried into effect only in an imperfect and rudimental way without the extensive buildings and arrangements which they require. Still, even now a useful begin-
ning can be made in both, and it should be our aim by such efforts as we can make in each of the departments of our enterprise, to give tangible evidence of its purposes and practical results.

"It is, therefore, proposed at an early day to make a beginning in some branches of the School of Industrial Science, and in the collection of objects suitable for the intended Museum. While thus foreshadowing, however imperfectly, the illustrations and practical teachings which it is the aim of the Institute to afford, we may hope, even thus early in our enterprise, to contribute somewhat to the cause of practical science and industrial education and progress, and be the better prepared for a wise use of the accumulated resources by which our entire plan is to be brought into operation."

The papers read at this first meeting of the Institute (as a Society of Arts) were by Mr. R. B. Forbes, 1, "On Sub-Aqueous Gun Firing;" 2, "On the Combination of Wood and Iron in Shipbuilding;" and by Mr. E. S. Ritchie on his own "Improvements in the Construction of Ship and Boat Compasses." Mr. S. P. Ruggles exhibited a model of a boat, with a stern wheel having warped paddles; Mr. C. M. Warren, a form of safety heating lamp; and remarks on other subjects were made by Messrs. M. D. Ross and M. P. Wilder.

The 37th Congress of the United States had passed, during its second session, an important "Act donating Public Lands to the Several States and Territories, which may provide Colleges for the Benefit of Agriculture and the Mechanic Arts." It was estimated that the sum which Massachusetts might hope to receive from the sale of its share (360,000 acres) would amount to nearly half a million dollars. Governor Andrew, while considering what recommendation to make on the subject in his forthcoming annual mes-
FROM GOVERNOR ANDREW.

COMMONWEALTH OF MASSACHUSETTS,
EXECUTIVE DEPARTMENT,
BOSTON, December 22, 1862.

MY DEAR PROFESSOR,—I want to call your attention to the extract herewith sent you, from the Act of Congress of last session, intended to provide colleges in each State, by grants of public lands (360,000 acres to Massachusetts, for example), "to provide Colleges for the Benefit of Agriculture and Mechanic Arts." Now it seems to me we ought to begin now "on a broad gauge." Why could not a great plan, looking to the long future of the Commonwealth, be inaugurated? A mere model farm won't do, nor a model machine shop; this section of the Act hints the idea. You have gifts of divination in such matters, which I, not an academician, have not. You, as a professor of science, can plan, where I can only dream.

Now, why might not the Bussey farm and fund, the land grant of the United States, the Institute of Technology, the College at Cambridge, its Scientific School, Museum, Observatory, etc., etc., all be made parts, or colleges, or adjuncts, or complements of a system of higher education with its practical and experimental ramifications, and all tending to raise our standard of learning, increase its influence, render our industry more scientific and better taught, therefore more productive, and helping to popularize science without lowering its flight? I wish I might have the instruction which I should derive from your reflections and views before writing my address to the Legislature. It meets the first Wednesday in January.

I am, most truly and faithfully, yours,

JOHN A. ANDREW.
The "extract" referred to was the following:—

"Chap. 130, Sec. 4, 37th Congress, 2d Session: To the endowment, support and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the Legislatures of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life."

Governor Andrew soon after invited Mr. Rogers to give him a "brief" regarding the Institute for his annual message to the Legislature.

FROM GOVERNOR ANDREW.

COMMONWEALTH OF MASSACHUSETTS,
EXECUTIVE DEPARTMENT,
BOSTON, December 30, 1862.

MY DEAR PROFESSOR,—I forgot to say last night, in my constant interruptions by others, that I desire to have a statement of the history and progress of your Institute during the past year. I want to say a good word for it in the message.

The more I think of it, the more I feel that the national grant, the Bussey Institute, and your Institute of Technology might, without invading any necessary individuality of either (so far as its preservation may be needed to preserve devises, or what not) be safely and wisely combined into a great affair.

Yours truly and respectfully,

J. A. ANDREW.
TO GOVERNOR ANDREW.

1 Temple Place, Boston,
December 30, 1862.

MY DEAR GOVERNOR ANDREW,—It will be a service most gratefully appreciated by our Institute should you find space, as you propose, to say a word in its behalf in your message.

In speaking of what the Institute has done during the past year I regret that I have so meagre a report to render of our financial progress, nor, I am sure, will this surprise you. For a long time the claims of patriotism seemed to forbid any large call upon the liberality of our friends for objects not connected with the war; and as the Society of Natural History was needing additional funds for its new building on the Back Bay, the leading members of the Institute thought it wisest to postpone any immediate effort for their own enterprise in order to cooperate with the Society in obtaining the requisite additional contributions. Thus strengthened in its resources, this Society, which, as you are aware, is associated with the Institute in the grant of land on the Back Bay, has been able to make such progress in its plans that it has nearly completed a stately and commodious building on the area appropriated to it in the grant, and will be able to remove its collections and transfer its operations to the new edifice in the course of the coming spring.

Having helped to secure this good work, the Institute is now prepared to make an appeal to its friends in behalf of its own peculiar object; and, notwithstanding the continued claims of the war, we are not without the hope of being able to secure a fund adequate to the requirements of the legislative grant, and sufficient for the erection of a building for our proposed School of Industrial Science.

We shall at least make a strenuous effort for the purpose; and judging from the encouragement al-
ready received and extended, we have no doubt that we shall have large, though perhaps not entire, success. Should we fall short of the amount required by the Act of the Legislature ($100,000), we trust that the peculiar circumstances of the times and the importance of our object may secure their further indulgence.

Desiring as early as possible to begin our appropriate practical work, and to demonstrate, as far as our present means allow, the nature and value of the objects to which the Institute is to be devoted, we have hired and fitted up a hall and other apartments, in the Mercantile Building on Summer Street, and have already begun our regular meetings as a Society of Arts, where communications and reports are made, and discussions held on subjects of Industrial Science, and where important inventions, models and specimens are exhibited, explained and criticised. From the favourable beginning already made in this department, we have reason to anticipate a large measure of usefulness and success.

We propose, with additional accommodations, at an early day to exemplify yet further the aims of the Institute by making a beginning in some branch of the School of Industrial Science, and by commencing the collection of models, machinery, materials, products and other objects suitable for the proposed Industrial Museum.

In these several modes of activity, embracing the operation of a Society of Arts, and such beginnings as we can make in the School of Industrial Science and the Museum, we hope to render our Institute of value in industrial education and improvement, even at the commencement, while we await the larger means necessary for carrying into effect the School of Industrial Science and Museum of Practical Arts proposed to be established on the Back Bay.

We have, as you already know, the formal assurance of a bequest of $50,000 from Mr. Ralph Hunt-
ington, for building and other purposes, and of the income of at least an equal amount from the fund of the Lowell Institute to be applied exclusively to the active operations of the School of Industrial Science, and beside these prospective contributions the Institute has received in hand the sum of $3,000 from the estate of Miss Townsend. Such, up to the present time, is the financial history of the Institute.

The Institute commenced its operations last spring by the adoption of a Constitution and By-laws, and the election of officers, since when it has been making arrangements, recently carried out effectively, for securing suitable accommodations for its meetings as a Society of Arts....

Yours cordially,
WILLIAM B. ROGERS.

P. S. January 1, 1863. — I have the great pleasure and satisfaction of adding that I have this day received, unsolicited, a donation of $1,000 for the Institute building from H. B. Rogers, and I know of some others at least as great.

Mr. Rogers's "brief," thus submitted in answer to the Governor's letter of December 30, 1862, may be found in the Message of the latter for 1863, pp. 65 and 66.

Reference has already been made to the fact that Mr. Henry Bromfield Rogers was no relative, but one of the most intimate friends, of Mr. Rogers. As long as he lived his interest in the Institute and his friendship for Mr. Rogers continued unabated. His name frequently recurs in the correspondence, and there was perhaps no one in whom during the organization of the Institute Mr. Rogers placed more absolute confidence. (See pp. 107, 108.)
TO HIS BROTHER HENRY.

1 Temple Place, Boston, January 4, 1863.

... This January 1, 1863, will surely be marked by history as one of the grandest of all its epochs. The words of the Proclamation define it simply as a war measure, and this, consistently with the Constitution, is all that it could be.1 But it is really the utterance of the humanity and sense of justice of the whole loyal nation, embracing the great mass of the Democratic as well as the entire Republican party. ... 

I regret to see that one monitor has foundered off Cape Hatteras. But we have many more even stronger than she afloat or on the stocks. I paid a visit to the Nahant, one of these plated turreted ships, some days ago, and was much impressed by her strength of iron and her prodigious fifteen-inch gun, which, though weighing more than two tons, is moved and directed easily by two men. ... 

I send you my copy of Bond's splendid volume on the comet and other matters, which will, I am sure, be admired by your astronomical friends. ... 

313 Washington Street, Boston, January 20, 1863.

... I send a copy of the Governor's address at the opening of the Legislature, in which you will see, besides much matter of patriotic interest, a long exposition of some general views on the application of the fund from the public lands, which will fall to this State.

Our Thursday Club has not been organized this year, on account probably of Mr. Everett's ill-health, as well as the feeling of some, that such bores as had been admitted ought in some way to be left out. ... 

To show how little effect the war is producing on

1 See p. 133.
the ordinary channels of liberality, I may mention that lately some gentlemen have subscribed $2,000 a year for three years to Professor Gray and the Botanical Garden. This is, I believe, a secret. Henry B. Rogers lately sent me a check of $1,000 towards our Institute building fund! Mr. Thomas Lee will, I suppose, do as much more, and so it goes. . . .

I have nothing recent from Philadelphia. Dr. Holmes, in a late visit to Philadelphia, attended one of Robert's lectures, and spoke here of the pleasure he had in hearing him and in seeing the heartiness with which the students testified their regard for him.

Our Institute of Technology held its first meeting as a Society of Arts some weeks ago. The meeting was very successful. Hereafter we meet on the second and fourth Wednesday of each month. We have a spacious hall and smaller rooms in the Mercantile Building, Summer Street, and shall probably begin to make collections there towards our Industrial Museum.

Please secure for me any pamphlets or books that may fall in your way relating to matters of this sort, the Proceedings of the School of Mines in London, the prospectus of lectures and teachings on Technology, etc. I am still more in want of a little book called the "Gas Inspector's Manual," the second edition. I have the first, but the other contains many important additions. . . .

I made a visit to Cambridge last week for the first time since the summer. . . . Wyman, with whom I dined, asked very kindly about you.

President Hill is getting quietly into the college harness. You will see that the free States are still in good condition, when I tell you that Ritchie has orders as usual from various colleges for expensive apparatus. I suppose there are twice as many good Ritchie coils in this country now as Ruhmkorff's in all Europe. . . . Of course all the colleges, Harvard included, are rushing in to claim a slice of the loaf which comes
to the State from the land grant. But the Legislature will probably be deaf to them all. I trust that the fund will be divided between a School of Agriculture and our Institute of Technology.

Public matters present no new phases. The operations against Charleston and Vicksburg will soon give us important events. . . .

Be of good courage about the country. A little longer and the power of the rebellion will be burnt out. The emancipation proclamation is doing its great work powerfully in the South. . . .

GIRARD STREET, PHILADELPHIA,
January 30, 1863.

Rejoice with me at the safety of our dear Robert, who has passed through the perils of a painful injury, and the amputation of his right hand, and is now rapidly recovering. In a few days he will be able to ride out with me, and I assure you, from the lips of his surgeons, Norris and Smith, that he will soon be as well as ever.

On the 10th of this month, while showing a laundress of the soldiers' hospital how to operate with a powerful ironing machine, his hand was drawn in between two heated rollers, and although he kicked off the band, the hand was crushed and, as afterwards appeared, was burned to the bone. The terrible effects of the injury showed themselves in continued anguish and greatly extending inflammation, until at last the surgeons resolved upon amputation as offering some slight hope of saving his life. . . .

313 WASHINGTON STREET, BOSTON,
February 10, 1863.

. . . It grieves the heart to think of the loss of that precious right hand, which had such skill and cunning, and which was ever so quick and strong in all useful and generous labour. Yet, when I think of the peril of life in which I found our dear Robert, this
loss becomes as nothing in view of his joyful rescue.

The interest manifested for his safety reached through every circle of Philadelphia, and I believe there is no exaggeration in Carson's remark that there was no one in the city for whom a more general and sincere sympathy could have been excited. Robert's manliness, humanity and gentleness, combined with great practical talent, have given him a noble place by himself in that great city. His colleagues admire and love without envying him, referring to his decision all difficulties that arise among themselves, and delighting to tell of his kind acts, and his firmness and courage.

We had a good meeting of the Institute last night. Hereafter our meetings will be on the second and fourth Mondays. The Academy meets to-night, but I shall probably be detained by a committee of conference on the project of an agricultural college and other matters now before the Legislature.

On February 21, 1863, Mr. Rogers's sister-in-law, the wife of his brother Dr. Robert Rogers whose painful and serious accident has just been alluded to, died at her home in Philadelphia. Her death was a great blow to all the brothers.

MR. ROGERS TO HIS BROTHER HENRY.

1 Temple Place, Boston,
February 24, 1863.

My heart is bleeding for the terrible blow which our dear Robert has just suffered in the death of his loving, devoted Fanny. A week ago she was seized with sore throat, which assumed a malignant and unmanageable form, and closed her life of long martyrdom on Saturday, the 21st inst. This morning I, for the first time, heard of her illness along with the sad news of her death. . . .
The following circular letter concerns the foundation of the National Academy of Sciences.

FROM HON. HENRY WILSON, SENATOR FROM MASSACHUSETTS, AND AFTERWARDS VICE-PRESIDENT OF THE UNITED STATES.

UNITED STATES SENATE, March 5, 1863.

PROFESSOR W. B. ROGERS:

Sir,—A bill to incorporate the “National Academy of Sciences” has been introduced by me in the Senate, and, having passed through the several stages of legislation, has now become a law under which you are one of the corporators. In the third section of this Act it is enjoined “that the National Academy of Sciences shall hold an annual meeting at such place in the United States as may be designated.” In order to fulfil the injunction, and to take the first step towards the organization of the Academy, I have to request that you will be pleased to inform me, as soon as possible, at what time it will be most convenient to you to attend a meeting in New York. In naming this time it is not necessary that you should be more specific than to give the month and part of the month.

After receiving the replies to this circular, I will select a day of meeting which will be most convenient to a majority of the members, and notify you accordingly.

I have the honour to be, with high respect,

Your most obedient servant,

HENRY WILSON.

AN ACT TO INCORPORATE THE NATIONAL ACADEMY OF SCIENCES.

Be it enacted by the Senate and House of Representatives of the United States of America, in Congress assembled, That Louis Agassiz, Massachusetts; J. H. Alexander, Maryland; S. Alexander, New Jer-
sey; A. D. Bache, at large; F. A. P. Barnard, at large; J. G. Barnard, United States Army, Massachusetts; W. H. C. Bartlett, United States Military Academy, Missouri; U. A. Boyden, Massachusetts; Alexis Cassell, Rhode Island; William Chauvenet, Missouri; J. H. C. Coffin, United States Naval Academy, Maine; J. A. Dahlgren, United States Navy, Pennsylvania; J. D. Dana, Connecticut; Charles H. Davis, United States Navy, Massachusetts; George Englemann, St. Louis, Missouri; J. F. Frazer, Pennsylvania; Wolcott Gibbs, New York; J. M. Gilliss, United States Navy, District of Columbia; A. A. Gould, Massachusetts; B. A. Gould, Massachusetts; Asa Gray, Massachusetts; A. Guyot, New Jersey; James Hall, New York; Joseph Henry, at large; J. E. Hilgard, at large, Illinois; Edward Hitchcock, Massachusetts; J. S. Hubbard, United States Naval Observatory, Connecticut; A. A. Humphreys, United States Army, Pennsylvania; J. L. Le Conte, United States Army, Pennsylvania; J. Leidy, Pennsylvania; J. P. Lesley, Pennsylvania; M. F. Longstreth, Pennsylvania; D. H. Mahan, United States Military Academy, Virginia; J. S. Newberry, Ohio; H. A. Newton, Connecticut; Benjamin Peirce, Massachusetts; John Rodgers, United States Navy, Indiana; Fairman Rogers, Pennsylvania; R. E. Rogers, Pennsylvania; W. B. Rogers, Massachusetts; L. M. Rutherford, New York; Joseph Saxton, at large; Benjamin Silliman, Connecticut; Benjamin Silliman, junior, Connecticut; Theodore Strong, New Jersey; John Torrey, New York; J. G. Totten, United States Army, Connecticut; Joseph Winlock, United States Nautical Almanac, Kentucky; Jeffries Wyman, Massachusetts; J. D. Whitney, California, their associates and successors duly chosen, are hereby incorporated, constituted and declared to be a body corporate, by the name of the National Academy of Sciences.

Sect. 2. And be it further Enacted, That the National Academy of Sciences shall consist of not more
than fifty ordinary members, and the said corporation hereby constituted shall have power to make its own organization, including its constitution, by-laws, and rules and regulations; to fill all vacancies created by death, resignation or otherwise; to provide for the election of foreign and domestic members, the division into classes and all other matters needful or usual in such Institution, and to report the same to Congress.

Sect. 3. *And be it further Enacted*, That the National Academy of Sciences shall hold an annual meeting at such place in the United States as may be designated, and the Academy shall, whenever called upon by any Department of the Government, investigate, examine, experiment and report upon any subject of science or art, the actual expense of such investigations, examinations, experiments and reports to be paid from appropriations which may be made for the purpose, but the Academy shall receive no compensation whatever for any services to the Government of the United States. Approved March 3, 1863.

With the original Act of Incorporation Professor Rogers had nothing to do. He was present, however, at the meeting appointed in the following circular letter, and took a prominent part in the organization of the National Academy.

**FROM SENATOR WILSON.**

WASHINGTON, D. C., March 18, 1863.

PROFESSOR W. B. ROGERS:

_Sir_,—Replies have been received to my circular letter of March 5 from more than three fifths of the members of the National Academy of Sciences, named in the act of incorporation, a large majority of whom indicate no special date as more acceptable than another, leaning, however, to an early organization.
Where a choice is indicated, the dates indicated are between the last of March and beginning of July, the average being before the middle of May. May and June are excepted by some of the members.

I would therefore select as convenient to the large part of the members, Wednesday, April 22.

I shall, if practicable, as suggested by many of the members, be present at 11 A.M. to call the meeting to order at the "Chapel of the University of the City of New York."

I have the honour to be, with high respect,

Your most obedient servant,

HENRY WILSON.

At this meeting the Academy was duly organized, and Professor A. D. Bache was chosen President.

MR. ROGERS TO HIS BROTHER HENRY.

1 Temple Place, Boston,
March 17, 1863.

I have this moment returned from the State House, where I have been in conference with a committee for some hours on the subject of an appropriation in which our Institute is interested. By Congressional grant the State is entitled to a portion of the public lands, amounting in value to some $400,000, to be appropriated to education in Agriculture and the Mechanical Arts. I have been urging the claim of the Institute for a share in the distribution of the fund, and am in hopes that the committee will recommend giving us one half, or at least one third of the proceeds. None of this fund can be used for building, and we are now trying to raise $100,000 by subscription for this purpose. We have only started in this effort, but have already $10,000 subscribed; so much for what can be done in war times in this marvellous country; so much as an illustration of the undiminished confidence of the community in its future power and
resources, and of its assurance that the war is to result in our entire victory, and in a greater prosperity and strength than has ever belonged to the country before, or than could have been its lot with the load of slavery to obstruct its efforts. . . .

The policy of the emancipation proclamation, the master-stroke of the government, is more and more generally accepted and sustained, and its impression in the slave States is more effectual towards ending the rebellion than any victories in the field would be. Union clubs and leagues have been formed everywhere through the free States on such an imposing scale as to combine the entire loyalty of the country, and to show to Southern sympathizers and speculators in peace schemes the utter hopelessness as well as the personal peril of their attempts. Such a club has lately been got up here, uniting all the truly loyal men, of whatever party, to encourage patriotic feeling and loyalty to the government. In spite of my remonstrances they have made me one of the Vice-Presidents. Mr. Everett, who since the opening of the war has been very decided on the right side, has been made President, though many of us preferred and voted for old Mr. Quincy. On the whole perhaps the choice made was the best. Our club house is the former residence of Abbott Lawrence in Park Street, next to Ticknor's, and when it shall have been altered and fitted up it will form a fine establishment for our purpose. C. G. Loring and Ingersoll Bowditch are also Vice-Presidents. . . .

What think you of a National Academy of Arts and Sciences in the United States, incorporated at the very close of the session of Congress just ended, and of which only two or three of the men of science knew anything until the action of Congress was announced in the newspapers? The corporators are fifty in number,—to fill their own vacancies. Robert and I are among them, but though such men as —— are on the list, George Bond, the most distinguished practi-
cal astronomer we ever had, is omitted! . . . Again, Cooke and Lovering are left out, though many an unknown name is placed on the roll of honour. . . .

We are cheered to see the better spirit that is manifesting itself in Great Britain towards this country. But we cannot imagine how the government can tolerate the fitting out of war vessels for the Confederacy, as is so openly done in the shipyards of Great Britain. If they are permitted to leave the British ports to prey on our commerce, all parties, as one man, will cry for a war of reprisal upon the piratical aggressor. Would it not be natural and just? . . .

The time allotted to the Institute in which to raise the guaranty fund of $100,000 required by the Act of Incorporation, was again about to expire. The finance committee of the Institute (Messrs. Ross, Beebe, Tobey and Eldredge) therefore issued, on March 7, 1863, an earnest appeal for contributions. But meanwhile aid was coming from a powerful source. The subject of the land grant, already touched upon above in the letters of Governor Andrew, etc. (see p. 141), had been referred, along with that portion of the message dealing with the same and with the Society of Natural History and the Institute of Technology, to a joint special committee of the Legislature of 1863. The Report of this committee is a long and valuable document (Senate, No. 108, 1863), and at the end recommends that after reserving one tenth of the expected income for the purchase of lands for an Agricultural College, one third of the remainder shall be paid to the Institute as a College of Mechanic Arts. This Report was a powerful aid to the Institute, then struggling to complete its guaranty fund. The latter was finally raised in time to fulfil all requirements by the aid of Henry B. Rogers, Esq.,
156 ORGANIZATION OF THE INSTITUTE. [1863.

Nathaniel Thayer, Esq., and, especially, Dr. William J. Walker, of Charlestown.

The following paragraph from a letter of President Rogers soliciting aid for the Institute, is worthy of preservation:—

"I am sure that I speak from no impulse of mere enthusiasm when I say that this new undertaking presents an opportunity of practical beneficence in connection with education which is not only peculiar but without precedent in this country. My experience as a teacher and my reflections on the needs and means of industrial instruction assure me that this enterprise, when truly understood, must command the liberal sympathy of those who aim to make their generosity fruitful in substantial and enduring public good." . . .

MR. ROGERS TO HIS BROTHER HENRY.

BOSTON, March 31, 1863.

. . . As one of the Trustees of the Blind Institution in South Boston I, this afternoon, attended the closing exercise of the session, and for the first time saw that marvel of psychology, Laura Bridgman. She conversed fluently by touch of fingers and appeared to be full of thought and sensibility. Your friend Dr. Howe made kind inquiries about you.

Among my multifarious affairs at this time is the organization of the Union Club, of which Mr. Everett is President, and I am one of the four Vice-Presidents. We are making thorough republicanism and loyalty to the government, proclamation and all, quite the fashion even with many who used to be terribly conservative. We are also busy with a society for distributing interesting patriotic documents at home and abroad. I mail you a little pamphlet containing our constitution and by-laws.

The Institute is growing in favour. Within two
weeks upwards of $20,000 have been subscribed towards our proposed building, and we are looking for a very large sum, perhaps $100,000, from an old gentleman ¹ who has lately been very liberal to the Natural History Society. My efforts before the Legislative Committee have led to a favourable report, and unless certain secret opponents continue to avert present action, we shall receive one third of the benefit of the donation of land scrip from the United States, amounting to upwards of $100,000. We shall, therefore, probably be driving piles for our building before midsummer. This surely does not look as if the country was on the eve of ruin.

Mr. Nathaniel Thayer gave me $5,000 a few days ago for the Institute, Thomas Lee and H. B. Rogers each $1,000, and so it goes. But I must not talk further of these matters . . .

I have been making some interesting experiments in my office upon the effect of different quantities of carbonic acid contained in coal gas upon its illuminating power.

FROM HIS BROTHER HENRY.

THE ROUKEN, NEAR GLASGOW,
April 10, 1863.

I have just finished my second paper on coal for the monthly magazine called "Good Words." It contains a little chapter on petroleum. Your frank criticism or commentary will be useful to me. I presume you can see the "Good Words" readily in Boston. Here it has a prodigious circulation, and men of the highest literary and scientific rank are among its contributors. See Herschel's capital essay on the Sun in the number for April.

Our college winter session approaches its close, and in the first week of May I enter on my summer session. We have taken the same house at Shawlands we used last summer, and shall enter it the 1st of May. Just now we are all of us, little Mary and all, guests

¹ Dr. William J. Walker.
for a few days of our friends the Crums, at Mr. Walter Crum's new beautiful place The Rouken, near his works at Thornlie-bank. Mr. Crum is at the moment prosecuting some very curious researches into the causes of the non-absorption of dye-stuffs by unripe cotton fibre.

Professor William Thomson and his brother, the engineer professor of the college in Belfast, are coming this evening. William Thomson, whom I think you will remember, is a son-in-law of Mr. Crum, and lives at Crum's former house, Thornlie-bank, only half a mile distant.

Thomson and Professor Tait, of Aberdeen, accompanied by two or three others, are going this coming summer to the Peak of Teneriffe, to institute experiments in atmospheric electricity, etc., at a high level, and they are importuning me to join their party, but I am wanting in courage, as I fear a lack of the required strength and health. . . .

TO HIS BROTHER HENRY.

1 Temple Place, April 14, 1863, 10 P. M.

. . . I have been constantly occupied for the last two weeks, and still am, with the Institute affairs. We have been brilliantly successful in obtaining funds for building, having secured already upwards of $100,000, $40,000 of which are in sums from $100 to $5,000, and the rest all in one mass, given us by Dr. W. J. Walker, of Newport [formerly of Charlestown]. We shall probably commence building in the course of the summer. . . .

I have been reading Huxley's lectures on Darwin, which are really admirable. They will no doubt be republished here, and will have a wide sale. They will surely do much to impress the Darwinian views upon general readers in this country. What think you of them? The book on apes, etc., I have not yet received. These English, and indeed all foreign books, are now at a double price. . . .
TO WILLIAM J. WALKER, M. D.

1 Temple Place, Boston,
April 14, 1863.

DEAR SIR,—It gives me great pleasure to comply with the vote of the Institute of Technology, requesting me to communicate the feelings and views of the Institute in relation to your recent donation.

In doing so I forbear from any added expression of our gratitude further than to say that every member of the Institute acknowledges and will ever remember this generous and timely aid, which, besides securing the state grant of land for our immediate use, places our enterprise in a position to command the confidence as well as the helpful sympathy of the public.

Neither will I obtrude my own feelings further than to mention the delight with which I learned in the most critical juncture of our affairs that so strong an arm was stretched out in support of that popular practical education which it has been my most earnest effort to promote.

The best evidence which my colleagues and I can furnish of our appreciation of your aid must consist in our faithful effort to make your benefaction productive of the greatest good to the greatest number by causing the Institute to dispense as widely as possible the blessings of sound practical and popular education.

Permit me to say that it has given me especial gratification to find from conversation with my friends, Mr. Tobey and Professor Wyman, that the views on elementary and practical education and the methods of teaching, which I have long entertained and endeavoured to put in practice, are, as far as I can see, entirely coincident with your own.

To teach exactly and thoroughly the fundamental principles of positive science, with their leading applications to the industrial arts, and to make this teaching as widely available as possible, are the cardinal ideas of our proposed School of Industrial Science. I
need hardly add that in carrying them into effect the Institute will be glad to receive any suggestions with which you may please to favour them.

I remain,

Very gratefully,

Your obedient servant,

WILLIAM B. ROGERS.

FROM HIS BROTHER HENRY.

1 College, Glasgow, April 24, 1863.

. . . Despite the testiness of some of the commercial class in this country toward the United States, as you will see from the last debates in Parliament, there is, I think, a growing earnestness speaking out on the part of the middle classes, especially the friends of negro emancipation. Next week I am to attend on the platform a very large meeting here to be presided over by my colleague, Professor John Nichol,1 son of the late astronomer, summoned for the avowed motive of expressing sympathy with President Lincoln's policy in relation to the slaves, etc. The movers of this public demonstration have been trying to enlist me actively in it, but I shrink from all display of the sort, partly from my growing repugnance to all excitements, the result, perhaps, of a certain lassitude of health, and partly from a conviction that the affair should seem to emanate, whence indeed it really does, from a sentiment purely British. The well-known anti-slavery champion, George Thompson, will be one of the speakers, but from all I learn the participators generally will include very few of the so-called influential or leading men of Glasgow. Just now there is some nervousness about the relations of Britain and the Federal Government, but I feel no panic, so well assured am I that neither the English ministry nor the authorities at Washington will spare any effort to avert a war. . . .

1 Professor of English Literature, University of Glasgow.
Think of my surprise, dear William, at seeing your likeness in a photograph in a bookseller’s window two days ago in Queen Street, Glasgow, as I carelessly turned my head. I paused, and found it a capital picture of you; ranged with it were similar carte-de-visite likenesses of a number of eminent Americans: that noble, gifted man, Theodore Parker, Wendell Phillips, Daniel Webster, Waldo Emerson, Longfellow, Motley, etc. On that of yourself this inscription in pencil, “Professor Rogers, brother of Professor Rogers, of Glasgow.” I rushed into the shop and bought it. On showing it to Eliza she found on the back of the card the following, “Professor Rogers, brother of your Professor Rogers in Glasgow, known to fame in America.” In centre of back, “Photographed by Black, 173 Washington Street, Boston.” You may imagine how I shall cherish it. Much pleasure does it give me to show it to my more intimate friends here. . . .

TO HIS BROTHER HENRY.

1 Temple Place, April 28, 1863.

Now for a word or two about the meeting of the National Academy of Sciences.” This, as appointed by Senator Wilson, was held in the chapel of the New York University, within earshot of Professor Draper’s lecture-room, and near that formerly used by Loomis, though neither of these gentlemen was admitted to the band of fifty. As Robert and I ascended the stairway we met Draper going the other way. I felt the incident deeply, and early in the course of preliminary proceedings, I took occasion frankly to express my surprise and mortification that in a body professing to represent the science of this country we should look in vain for Bond and Draper and Loomis and Baird. “This,” said I, “is a sad error, if it be not a grievous wrong. Surely,” I added, “there are many here who in their hearts must feel that they have no claim to be here when such men as I have named have
been excluded!” The shaft struck the mark, and caused a pause in the exultation and mutual glorification in which some had been indulging.

Of the fifty corporators named in the bill, thirty-two were present the first day, and twenty-seven during the rest of the session. A committee of organization was first appointed, consisting of nine, Bache being chairman, supported by Benjamin Gould, Agassiz, Peirce, Benjamin Silliman, Frazer, etc., and to which I also was admitted. The Constitution and Rules, most elaborately prepared, were read from the MS. by Bache. There was no dissent on any important point, unless when I made objection. One of the provisions made the tenure of the offices of president, vice-president and secretary, for life! To this no one objected, and I let it pass without voting until, the morning’s task being closed, Bache was about shutting up his book. Then I rose, and calmly called their attention to this clause, told them that to exact that would be to blast every hope of success, and so impressed them with the responsibility of such a course that they voted the term of six years instead of for life. I had much use for my backbone, but did all calmly and without personality. I was supported in the general meeting by Newberry, and by Stephen Alexander on several occasions, and succeeded in modifying or defeating some of the most objectionable provisions, and, what is better, in having the whole open to immediate amendment or excision at the first stated meeting to be held in Washington next January.

At first I felt indisposed to go; Gray and Wyman, yielding to such a feeling, stayed at home. But I rejoice now that I took part in the matter, as I feel that I did good. The officers elected are: Bache, President; Dana, Vice-President; Agassiz, Foreign Secretary; Wolcott Gibbs, Home Secretary; Fairman Rogers, Treasurer. The Council is made up of Commodore Davis, Professor Torrey, Rutherford and Lesley. . . .
MR. ROGERS TO DR. W. J. WALKER.

1 Temple Place, Boston,
May 4, 1863.

Dear Sir,—At the risk of repeating what may be in part already known to you, I undertake the pleasant duty of telling you of the favourable action of the Legislature on the two subjects connected with our Institute, which have come before them.

You will, I am sure, be glad to hear that they have repealed the ungracious condition accompanying the grant of land on the Back Bay, and the Institute and the Natural History Society are now relieved of possible liability connected with the sales of the surrounding land.

They have, moreover, shown their appreciation of our claims by appropriating to the active operations of the Institute three tenths of the proceeds of the public lands granted by Congress to Massachusetts, for the promotion of education in Agriculture and the Mechanic Arts. What may be the value of this appropriation, when realized, and within what time it shall become available, is, I presume, somewhat uncertain, but the amount, it is thought, will reach one hundred thousand dollars. By a separate Act, the Legislature have given the remaining seven tenths of the grant to the formation and endowment of an Agricultural College. Following the suggestion of the Governor in his inaugural address, a strong effort was made early in the session to secure a union of this entire prospective fund with that of the Bussey estate, and to make the Agricultural College and the Institute of Technology parts of a grand plan centering in Harvard University.

The latter proposition, suggested at the hearing before the Legislative Committee, met with the instant reply from myself and others that the Institute had from the beginning determined to stand alone, that its independence was essential to its success, and that it would accept no grant from the State, or from any
other quarter, which should in the slightest particular interfere with this independence. After hearing our statements and canvassing the subject very fully on several occasions, the committee abandoned their original purpose, and framed the two bills, which have been enacted by the Legislature, and of which I have already communicated the substantial features, making the Agricultural College an entirely distinct institution, and giving the Institute the above-mentioned share of the Congressional grant with no other condition than that the Chief Justice of the State, the Secretary of the Board of Education and the Governor shall be ex-officio members of the Government of the Institute.

We are now busy planning our building for the School of Industrial Science, and thanks to your munificence, we hope soon to see its foundation laid.

Believe me, dear sir, with great respect,

Yours truly,

William B. Rogers.

To his brother Henry.

Lunenburg, June 4, 1863.

My dear Henry,—We came up to our quiet home on the hill yesterday, and I feel to-day a positive delight in the soothing stillness and gentle beauty of the scene, as well as in the dear associations with which it is so filled. The rush and noise and excitement of city life, unusually great for the past year, have worn upon E. and me, making the change to Sunny Hill more than ever grateful and restorative. I shall endeavour to pass more of my time this summer in the midst of such repose, but for this month I must pass most of my days in the city.

I received yesterday a short letter from our dear Robert... He will long continue to feel the loss of his hand, but will be able so to arrange his experiments as to have no serious embarrassment in manipulating...
Last week there came to me a notification from A. D. Bache, President of the National Academy of Sciences, stating that I had been placed by him on a committee (Frazer, Chairman) for examining and reporting on Saxton's hydrometer, and requesting me to signify my acceptance. Thus the Academy is to begin at once its services under the Weights and Measures Department of the Coast Survey. I replied by remarking that as the organization of the Academy was to be formally decided on next December, I thought it might be considered premature to enter upon its scientific business until after that time, and that furthermore my engagements forbade my undertaking the duty.

I find that I have been placed on the Reception Committee of the Boston Academy. Last autumn, after much discussion, the Academy decreed the Rumford Medal to Ericsson for his caloric engine and other inventions. I am much pleased with your very interesting and striking article on Coal in "Good Words." You succeeded in compressing into a small space a great deal of important knowledge in an attractive form.

SUNNY HILL, June 15, 1863.

... In my last, I believe, I told you of the Academy meeting, resulting in the election of new officers: Gray for President; D. Beck, Vice-President; W. B. Rogers, Foreign Secretary, etc.

... The Rumford Committee, of which I am a member, has now control of a fund of about $1,400 per annum, to be applied to the encouragement of inventions and discoveries connected with heat and light, and we are now laying out quite a systematic plan of work for this end.

I see in the May number of the "Philosophical Magazine," quite a severe article from Tyndall addressed to your colleague, W. Thomson. How painful are these reclamations and rejoinders among scientific men, and yet they seem inevitable so long
as scientific men consult their personal ambition so much more than they do their higher aspiration after truth and human advancement. . . .

I shall be anxious for all the practical information I can collect regarding schools of practical science abroad, to aid in planning the details of the Institute building to be erected. Can you get me any drawings and descriptions of the interior of the Technology department at Edinburgh, and of the School of Mines, Jermyn Street? All information of a specific kind relating to the fitting up and working of practical laboratories and other institutions germane to our plan will be of great value to me. May I ask you, through Dr. Anderson, Playfair and other friends, to furnish me whatever has been published on this subject in Great Britain. . . .

Where can I get a description and figures of William Thomson's very delicate electrometer arrangements?

God bless you, my own dear brother. Do take care of your precious health. Let nothing stand in its way. I find that at times I am prone to despondency from physical causes, and I am learning to cultivate a habit of cheerfulness; would that it were more natural to us all. I shall be impatient to hear from you, dear Henry, so write soon and often.

1 Temple Place, Boston,
July 5, 1863.

. . . Just now we are cheered by the news of the success of our army in the recent great battle near Gettysburg. We have no fear that the rebels can make a permanent lodgment in Pennsylvania. . . .

I have had very frequent interchange of letters and telegrams with Robert the past week. He is remaining to close up his business with the hospital and intends soon to join us, though this may be delayed by the need of his volunteer help to the yet further crowds of wounded and sick to be carried to the Philadelphia hospital.
Our nephew Henry, who enlisted in the Philadelphia Reserves at the first call of the government, is near Harrisburg performing his duty manfully. He has been heard from often, and is in good health and bright spirits.

For the first time for a long period, I, yesterday, remained in the city on the 4th of July, and had an opportunity of seeing and sharing in the celebration of our anniversary. E. came down on Friday, bringing Governor Andrew's two little girls, who had been staying with us, and she is now helping me to pass pleasantly what otherwise would have been the dullest of Sundays.

Holmes gave the city oration in the great theatre, to an audience packed to the dome, having behind him on the stage a fine orchestra, and behind this, in tiers of rising seats, a chorus of more than a hundred boys and girls of the schools, emphasizing their patriotic songs by the waving of the stars and stripes, a small specimen of which each had provided for the occasion. Behind and above this beautiful array stood the well-drilled, brightly dressed company of our boy-zouaves!! I mention these particulars as tokens of the feeling that absorbs all hearts — but those of the few traitors or snaky neutrals — among us. The little doctor acquitted himself admirably, and as soon as I can procure pamphlet copies of the oration I shall send you several to give your friends, as a true expression of the heart of the loyal North.

What kept me in the city, however, was my interest in the exhibition of the electric carbon light, which the Council, at the instance of George Hale, encouraged by me, have decided to make one feature of the evening celebration, as a substitute for part of the usual fireworks. Ritchie brought all his energy and ingenuity to work, and he accomplished a superb success. A battery of 250 large Bunsen cells sta-
tioned on the top of the State House dome, and a lesser one at the upper end of the Beacon Street Mall, threw floods of light among the trees along the avenues crowded with more than 100,000 pedestrians, and brought out the most wonderful effects of light and shadow and colour by the use of coloured glasses, which I had suggested. But the most exquisite effect perhaps of all was the illumination of the fountain in its various successive patterns by a battery of 150 cells planted in a tower on the edge of the pond. The air was slightly hazy, and the effects of the cone of rays passing among the trees along the tops, or streaming against the distant sky, or a tall steeple afar off, were marvellous and sometimes sublime.

I made a photometric measure of the carbon light of the State House, without the mirror, by an experiment in the dome, comparing it with an argand burner. Without a further experiment on the burner itself, to be made to-morrow, I cannot give numbers accurately, but I am safe in estimating the force of this carbon light as equal to that of about 12,000 candles. The battery was excellent and in fine action, as is shown by the fact that each cell was equal to about 50 candles.

July 7.

Our army in Pennsylvania and Maryland has been victorious. Lee is routed and attempting to escape, but will have great difficulty.

In regard to the exhibition of the electric light here referred to, Mr. Rogers wrote an interesting letter, which may be found in the “Advertiser” of July 3, 1863.

TO HIS BROTHER HENRY.

LUNENBURG, July 21, 1863.

... The steamer, which takes this, will carry to Europe the news of our late splendid successes in the Southwest, the capture of Vicksburg and Port Hud-
son, and consequent opening of the Mississippi, the discomfiture and rapid retreat of Bragg and of Johnston, with lesser successes in that quarter, as well as the good progress of our present attack on the forts at Charleston. The retreat of Lee, adroitly managed, would probably have been prevented by a bold attack as counselled by Meade and some of his officers. . . .

1 Temple Place, Boston,
August 4, 1863.

Your letter, with the other package, reached me last week, and I cannot too earnestly thank you, my dear brother, for the trouble you have taken in thus aiding my inquiries. The plans and documents on this subject will be of great value to us, and I shall, therefore, look earnestly for any further materials of the kind it may be in your power to send while in London. We have come to no final decision as to the form of the building we are about to erect, but shall probably do so in the course of the present month. This structure is designed mainly for the teaching department, and will embrace lecture-rooms, laboratories and apparatus rooms, together with an ample space for the School of Design. This will leave room for the beginning of the practical museum, but it is proposed, as soon as the School of Practical Science has gone into successful operation, to put up a separate building for the museum, at the opposite end of the area to that occupied by the Natural History building, and symmetrical with that building.

Our dear Robert, who was with us when your letter arrived, passed a week between Boston and Sunny Hill, to the great comfort of us all, and I think to the advantage of his health. He left for Philadelphia on Thursday last, the 30th. He has been a great sufferer, but has schooled himself to patience and quietude. He tells me that he has acquired great command over his nervous sensibility, so that he can maintain real calmness where he would otherwise be agitated and
perturbed. I am striving to learn the same important lesson, for I have found the habit of anxious thought and nervous excitement becoming a great foe to my comfort and even health. . . .

James's young comrade, the noble-hearted young soldier, Robert Shaw, has fallen at the head of the 54th (negro) Regiment, in the assault on Fort Wagner, near Charleston. He was, like James, pure as a child and brave as Caesar, but gentle as a woman and inspired by the noblest humanity. You will see the fury and barbarity of the rebels in their treatment of his remains.

Our country is delivering herself from the curse which has wrought her such terrible suffering. For all, who understand its cause, will feel that until that is wholly eradicated, we can have no real, enduring peace.

Give my kind remembrances to Professor Thomson, and to Playfair.

FROM HIS BROTHER HENRY.

28 Charlotte Square, Edinburgh,
August 7, 1863.

... My visit to Blackwood at St. Andrews was under a kind invitation from him to spend some days with Captain Speke, the successful explorer of the sources of the Nile. Speke is writing, or trying to write, a book, to be published by the Blackwoods, recounting his astonishingly strange, amusing, perilous adventures, but he is green in authorship, and untaught in science, and they are getting me to put into such digested shape as I can, his very imperfect geological reminiscences. My data for a promised chapter on the long unknown region traversed, are derived chiefly from the specimens brought home by him, and from his recollections of the rocks as suggested by the sight of his specimens and my interrogatories and cross-examination. My intercourse with Speke was exceedingly interesting to me, so fresh are the phe-
nomena he has to describe. Altogether my sojourn in Blackwood's house was a very charming holiday after college toil and tedium. Blackwood's seat is called "Strathtyman," is encircled by a park, lawns, and gardens, and commands a superb view of quaint old St. Andrews and of the ocean, and picturesque hills of that part of Fifeshire.

I believe I have not told you of my tour in the Isle of Arran with some six members of my college class and my assistant, John Young, completed only a few days before our quitting Shawlands and coming hither to Edinburgh. . . . Along the north shore of Arran, to a grand scene of stupendous cliffs and gigantic tumbled precipices of Old Red Sandstone conglomerate, called the Fallen Rocks. These conglomerates are the coarsest I have ever seen, not excepting those in the vicinity of Boston. On this shore one sees a beautiful anticlinal arching of the Red Sandstone, etc. The second day we went to Brodick, and thence by the naked shore over a most interesting outcrop of rocks all the way to Lamlash, passing and studying in this part of our traverse a superb exposure of a much renowned dyke of pitchstone. This is in fact only a very obscurely crystallized volcanic glass, or a semi-vitreous obsidian.

The day following we went to Brodick Castle, the seat of the Duke of Hamilton, and began the difficult task of ascending the high, steep mountain, Goat Fell, one of the loftiest in Scotland, more than 3,000 feet above the sea level, and excessively rugged near the summit. After many haltings I achieved the ascent to the peak, and there had a view of craggy and precipitous mountains very like those of the Swiss Oberland. To my great satisfaction I detected a grand anticlinal folding in the bedded granite, and thus got a clue to the structure of the whole central mass of the island. No geologist has detected this great anticlinal, and I mean to call attention to it. That of the coast in the Old Red is but a part of it. . . .
TO HIS BROTHER HENRY.

SUNNY HILL, August 16, 1863.

... The draft is going on, and with it the reënlistment of returned soldiers with bounties, notwithstanding the factious opposition of the mob-Democrats of New York city, headed by Seymour and Fernando Wood. ... A very important event of the war, thus far, is the proof which the negro has given of his capacity as a soldier. In every field where coloured troops have been engaged, whether on the Southern seaboard or on the Mississippi, they have shown a capacity for fighting equal to that of the same number of white troops. The talk of their cowardice and savagism has, therefore, wholly ceased. The prejudice against them as auxiliaries or companions in battle, formerly so general among the white soldiers, is rapidly vanishing, and there is every prospect that before the autumn campaign we shall have a large force, perhaps 100,000, of coloured troops, helping to subdue the rebels, and to secure the freedom of their race. Is not this a grand step forward for humanity? Add to this that the educational commission by its teachers and superintendents on the Sea Islands, at Newbern, etc., has brought within the folds of a free civilization for instruction and paid industry tens of thousands of fugitives, and of those deserted by their masters, and that their schools and plantations give the fullest evidence of the capacity of these people for knowledge and training, and you will see how much has been done in the last eighteen months to mitigate, if not remove, the former prevailing belief in the hopeless degradation of our American negroes.

As a specimen of the active zeal now enlisted in this cause, I may cite the fact that less than ten days ago the proposal was made by Mr. Stearns 1 in Boston to gather a force of 50,000 negroes for the government

1 Major George L. Stearns, Medford. Major Stearns was an ardent abolitionist, and recruited the first negro regiment in Massachusetts,
from the border States and the occupied parts of the Southern and Southwestern States, and funds were solicited to pay preliminary expenses incurred before enlistment. When I left Boston on Thursday, thirty or forty thousand dollars were already subscribed for this purpose! . . .

E. and I will soon take a trip to Vermont, and then, perhaps, a short visit to the salt water. The heat and occupation in town have wilted me down, so that, although as well as usual, I am thinner than ever before. I shall try to pick up some pounds weight and some dynams of strength before the fall tasks claim me.

I have been reading Tyndall's book on Heat, which is a very clever and useful resumé of the late researches. He certainly has great talent for expounding, as well as for conducting experimental researches. . . .

In view of the great victories of the Union arms President Lincoln appointed Thursday, August 6, 1863, to be observed as a day of Thanksgiving. The electric light was again called into service under the able management of Mr. E. S. Ritchie, and Mr. Rogers seized the opportunity to make photometric tests of its efficiency. The illumination, which was a great success, was seen as far away as Monadnock Mountain, about eighty miles distant.

An account by Mr. Rogers of his observations appeared in the "Advertiser" a few days later.

"The display of the electric light on Thursday evening formed a most appropriate conclusion to the celebration of the Thanksgiving appointed by the President in honour of our recent victories. . . . Nothing more beautiful has ever been shown to a popular gathering in the open air by night, such as that which
assembled on Thursday evening, than these novel and wonderful effects. . . .

"At one time in the evening, however, even these beautiful water scenes were varied with admirable success. After an interval of darkness which scarcely prepared the people for the brilliant sight about to burst upon their eyes, both the lights, that upon the cupola of the State House and that in the tower near the fountain, with the full force generated by batteries of five hundred cells each, were turned upon a common object, namely, the flag of the United States as it hung at the summit of the mast upon the hill in the Common. Nothing else was visible in the black darkness of the night but the graceful folds of our national ensign, and these, as plainly visible as under the noonday sun, seemed instinct with light, as if they had spontaneous power to show themselves to the people cheering below. At the same time, in intervals between thundering salutes from the artillery, the band played the 'Star Spangled Banner.' . . . Some interesting effects were produced by throwing upon the waters of the fountain images of Washington and of the President and patriotic inscriptions. . . . At one time the full strength of the light was thrown upon the ancient elm, to which tradition points as the first landmark of civilized man in our city; its foliage glittered in the refulgence as if it were a tree in an enchanted garden." . . .

TO HIS BROTHER HENRY.

1 Temple Place, August 31, 1863.

In my last I thanked you for the drawings, etc., relating to the Industrial Institution in Edinburgh. We shall not resume our Institute until October, at which time I wish to organize some of the teachings by way of a beginning. Everything germane to the subject of Institute Museums and Schools of Applied Science will be most acceptable.
The papers will tell you of the progress of war matters. Charleston will probably hold out awhile longer, but its doom is certain. The exploit of Gilmore's long-range cannon, sending shells a distance of five miles, will doubtless draw attention to our proficiency in artillery. If the war should continue two years longer, we shall be provided with the most formidable land batteries and iron-clad floating ones in existence. Perhaps even now our defences of the latter kind are the most impregnable ever constructed. I took Robert to South Boston to look at a monitor, the Canon-icus, lately launched, and now just ready to have the iron turret built on its deck; the walls to consist of ten layers of one-inch boiler iron.

The enlistment of coloured troops goes on bravely. Their behaviour has been in every way admirable. The Southern towns, where garrisons are needed, will hereafter no doubt be guarded by these acclimated troops. No one who is in earnest in this war and understands its true meaning thinks for a moment of admitting any of the seceded States with slavery. The great mass of the people, in spite of the arts of partisan Democrats and semi-traitors, have gathered from events a most earnest and resistless conviction that there can be no compromise with slavery, and they will see that there is none...

Do you know anything of Mr. Sutton, the chemist of Norwich? He has published a very nice little volume on the volumetric analysis. The method is so useful for practical purposes that I think of giving some illustrations of it in the Institute.

In my projected trip to Vermont, I shall look further at some points in its geology. Your account of Arran was intensely interesting, and especially as showing your capacity for fatiguing field work. What would I not give, my dear Henry, to have a season's rambles with you in some of the knotty regions of Switzerland, Wales or Scotland.
BURLINGTON, VT., September 14, 1863.

... Your delightful letter from Richmond Hill was forwarded to me at Castleton, where we were spending some days on the margin of one of the loveliest lakes in Vermont (Lake Bomazine), in the midst of the slate quarries and near the marble range of the State. I have had great pleasure in renewing my experience in field geology, though sadly missing your companionship.

To-day we came here from Lake Dunmore, a truly Scotch or Cambrian lake, having the great wooded slope of the westernmost range of the Green Mountains rising from its eastern shore. The whole face of this grand mountain is formed of vast sheets of our primal white, dipping steeply to northwest. I have found Scolithus in the rock. It is succeeded to the west by a dark slate and slaty sandstone, which separates it from magnesian limestone, beyond which again are the marble rocks. The rocks and their succession speak to my eyes convincingly that we have here, as you and I long ago inferred in Berkshire, the same rocks and same order as in the Blue Ridge, Virginia and Pennsylvania valleys. I am almost provoked to think that through Logan's talk about the Green Mountains from Canada, and Hall's talk about fossils in the Snake Mountain, I was led to change my first, and as I now see, true interpretation of the geology of western Vermont. ... Next summer I shall give myself full time for some thorough work in the Green Mountains. The country is lovely, the means of exploration excellent, and the comforts of living more than the geologist usually enjoys. I have found E. a great help, and we have both profited in health. ...

All my thoughts and occupations for two weeks past have kept you continually in my mind. Surely we must again try our hammers together on some knotty problems of geology. ...
TO DR. FIRTH, NORWICH, ENGLAND.

Lunenburg, Mass., September 21, 1863.

My good friend,—Your note of hospitable invitation reached me just as my wife and I were leaving home for a tour among the lakes and mountains of the adjoining State of Vermont. We returned on Saturday night last, and I gladly seize the earliest moment to thank you and Mrs. Firth for your proffered kindness and for the friendly wishes accompanying it. Had it been in my power to attend the Newcastle meeting of the British Association, I should have felt that a visit to Norwich would form one of the most delightful of my duties and engagements. But I cannot think of leaving my country even for a short absence until this great treason has been entirely defeated and subdued. Doubtless in a year or two this consummation, so devoutly prayed for by the friends of human progress, will have been reached; and then, with many a grateful memory and happy anticipation, I and my friends will seek to renew the quiet delights of a visit to the fatherland. Meanwhile let us all hope that the mutual confidence and good-will which had so united us as nations shall not be permanently weakened by the wicked misstatements or unconscious misconceptions which have lately threatened to estrange us. The best interests of mankind are dependent on the permanent cooperation of the two countries in the work of civilization. In all essential aims and aspirations we are one, and only ignorance or wicked misconstruction can mar the harmony which should keep us hand in hand in the van of liberal progress.

This great treason has brought sorrow into most of the households within my circle, and has called us to mourn at our own fireside the loss of one of the noblest of the youths, my wife's brother, Major Savage, who fell a year ago at the battle of Cedar Mountain, in Virginia. Yet such sacrifices we are
proud to make in behalf of that humanity which even more than our nationality gives, we think, a lofty consecration to our efforts.

That bright, interesting son of yours, of whose looks and voice I have so distinct a recollection, has, I trust, grown up to be a delight and comfort to your pleasant home. The family circle in which I was so wisely and kindly nursed rises clear in my remembrance, and I should be happy to think that the stranger to whom they gave their smiles has not been forgotten by them in these many passing years. . . .

TO HIS BROTHER HENRY.

LUNENBURG, September 28, 1863.

. . . Since my return I have only partially put on the harness of my customary duties, and I intend to keep in mind the importance of working moderately. I have a good deal before me in the way of work and care for this winter. I have to make up a report of my gas inspection, in which I shall include all my new apparatus and methods. The Institute depends upon me for arranging materials for the fortnightly meetings, and for getting up this autumn some courses of instruction by way of a preliminary trial of our plan. Still I believe I can get on with these duties without overwork, and I am resolved as much as possible to maintain calmness and quiet in all my labours.

BOSTON, September 29, 1863.

. . . I have heard from various quarters that business is very prosperous, and I infer that it is so from all the indications around me. Think of lots in the new land on the Back Bay selling at auction to-day at $3 a foot. This is opposite our new building (Technology) that is to be. . . .
I write hurriedly a few lines by this week's Cunard packet to tell you that we continue well, and in full enjoyment of our pleasant home here at the foot of Richmond Park.

I am going on Tuesday of next week (this is a Saturday) to Edinburgh to attend a meeting of the Social Science Congress or Association, where Lord Brougham is to preside. I shall be a guest with my friend A. Keith Johnston. I propose to call the attention of one of the sections to some interesting statistics of the growth, relative and positive, of the United States, Northern and Southern, deriving my materials from the new volume of the National Almanac.

I have lately made the acquaintance here at Richmond of Mr. Edwin Chadwick, once head of the Poor Law Commission, and now an active statistician and a leading member of the Social Science Association. He has been greatly struck with some of the pamphlets, etc., sent to me by you some months ago, relating to the war and the Southern doctrines, etc. Do, my dear William, seize the first good occasion of any Northern friend coming to England to send me another parcel full of such instructive, useful documents. We cannot serve our country's great cause more effectually than by diffusing sound information about the North and South, and the grounds and conduct of the war, here in Great Britain. Mr. Chadwick will, I think and hope, try to get the little pamphlet by Moody I gave him, on the "Sentiments of the Southern Public Men," reprinted here. He says it is a most telling thing against the conduct and aims of the Southerners.
London, October 31, 1863.

... One of the articles sent is a parcel in brown paper, addressed to you, containing the Reports, Catalogues, etc., of the South Kensington Museum, the identical set which I despatched to you by the hands of Mr. Henry Stevens in August last. ...

The other evening I passed a pleasant two hours with Mr. John Bright, the eminent member of Parliament, at the house of his brother-in-law, Mr. Lucas, editor of the "Daily Star," one of the staunchest friends of the Federal Union. Bright looks confidently to a successful termination of the American difficulties, and is wonderfully well informed upon the history of the conflict, and the past and present state of parties.

My finely drawn diagrams copied by the Johnstons of Edinburgh from the National Almanac of the United States, on the Progress of the Free and Slave States, will be safe here in London another day or two, and I think I shall use them in a little address I am inclined to consent giving to the Emancipation Society of London, on the Benumbing Influences of African Slavery in the United States. ...

TO HIS BROTHER HENRY.

Boston, November 17, 1863.

My dear Henry, ... The protracted, though slight illness, which I suffered before removing to the city, operating on a system a good deal reduced by the cares and anxieties of the past year or two, brought me down to the point at which I have always been liable to much nervous perturbation, and I expect for some time yet to pay the penalty of my forgetfulness of this constitutional peculiarity. I feel that I am slowly recruiting, but I am compelled to abstain from all business or study, and may be under
the necessity of a continuance of this abstinence for some month or two longer. You must not be anxious about me, as I am doing well and have only to observe patience and prudence, which I shall certainly do, to reinstate myself. . . .

I am glad you see Mr. Bright. Do you ever meet J. Stuart Mill, whose name is reverenced by every patriotic American? I long to see him, to tell him in what grateful honour he is held among us. . . .

Robert's last letter two or three days ago was full of life, and gave most cheering accounts of his lectures, in which he says that strangers do not detect any awkwardness or even peculiarity of manipulation. . . .

I am sure your proposed lecture before the Emancipation League would be telling. Our war matters are making good progress. Had the success of the government been as rapid as at once hoped for, we should have failed to make the contest a final one, for slavery would have still held some remnant of its old disastrous power. But the fear of that is now ended, and when we emerge from this war we shall be truly and throughout a nation of freemen.

Your affectionate brother,

WILLIAM B. ROGERS.

The "illness" above referred to was due to severe nervous exhaustion, and relief was sought in a journey to New York and Philadelphia.

FROM CHARLES SUMNER.

WASHINGTON, December 30, 1863.

MY DEAR PROFESSOR,—A Happy New Year to you and your house! I shall not forget your desire with regard to the census; but it is not yet published.

I wish I could talk with your brother for half a day. Remember me to him most kindly. I know he keeps
his loyalty. But what does he say of England, — our England and her shortcomings?

Ever sincerely yours,

CHARLES SUMNER.

TO M. D. ROSS.

PHILADELPHIA, December 9, 1863.

My dear Mr. Ross,—Your letter, which reached me a week ago, claimed an earlier reply. Its details of the meeting of the government and of the interest shown in our good work gave me more pleasure than I can express.

I am very grateful to the gentlemen for their kind consideration of my health, and for the suggestion of defraying the expenses of my visit to Europe. But I have made it a principle from the very incipiency of our enterprise to give all the service in my power to this cause so dear to me as a pure offering of zeal and affection, and I am resolved on no occasion and for no consideration to depart from this purpose.

From what I know of my state of health and from the opinion of my medical friends, I do not think that a trip to Europe at this season would accelerate my convalescence. Probably in the spring, unless I should find myself entirely restored, such a visit would be serviceable. Meanwhile I am steadily, although slowly, recruiting my strength and overcoming the nervous irregularities from which I have been suffering, so that I may look confidently for such a measure of strength during the coming winter as will enable me to share in the business of the Institute, at first only partially, but I trust as the season progresses, nearly to the extent which my interest and zeal would prompt me.

I am glad to hear that the additional rooms have been secured, and feel grateful to the liberal friend who has made this step so easy. Please say to him that I greatly desire to know him, and to express to
him my share of the thanks of the Institute for his timely generosity. It pains me not a little that I am not able at once to open one of the courses of instruction to which I have been looking forward with such pleasant anticipation. But I shall be strong enough for this — I earnestly hope — in the progress of the season.

With thanks for your kind letter, so full of interest to me, and with kind regards to Mrs. Ross, I remain,

Yours faithfully,

W. B. Rogers.

TO MR. JAMES SAVAGE.

Brevoort House, N. Y., December 20, 1863.

. . . We have a more quiet room than when here before, and my sleep is proportionately better, though still a meagre substitute for that hearty, dreamless, single nap from which you every morning arise, refreshed and vigorous. I am expecting even more rapid improvement on our return to the comforts of Temple Place, but I cannot flatter myself that I shall be in fair working condition for some months to come. . . .

In Philadelphia, Dr. Carson asked about you with great interest. You will remember he dined with us last spring along with Dr. Ruschenberger and Robert. He has treasured up some of the spicy sayings which escaped from you on that occasion. Philadelphia we found rather dull. New York is immense and confounding. Our hearts turn to dear Boston, thanking heaven that our home is there, where beyond all other spots we can enjoy security in union with perfect freedom, and see the best fruits of wealth gathered by education and philanthropy.

On his return to Boston Mr. Rogers prepared, as he had done for 1862, a “brief” concerning the
Natural History Society and the Institute of Technology for the use of the Governor in his annual message. This shows well how far the new plans had advanced.

"The Boston Society of Natural History, having completed their new building on the land granted them for that purpose on the Back Bay, have transferred their operations to that place, and are now arranging their museum in the ample hall provided for its reception. A fresh impulse has been given to the labours of the society by these extensive and appropriate accommodations, and much benefit may be expected to public education from the large and growing collections of the society thus attractively displayed.

"The Massachusetts Institute of Technology, having complied with the conditions of the Act allotting to its use a portion of the Back Bay land, has been put in possession of the same, and has commenced the erection of a building, one hundred and fifty feet long by one hundred feet wide, midway on the space assigned to this association and the Society of Natural History. This building, designed especially for the accommodation of the School of Industrial Science, will afford space also for the Museum of Arts and Manufactures until it shall be found expedient to provide for the latter a separate edifice, to be erected at the western end of the assigned space in correspondence with the Natural History building now completed at the other extremity.

"The Institute has formally accepted the Act of the Legislature assigning to its use a portion of the fund accruing from the Congressional grant of public lands, for the benefit of Schools of Agriculture and the Mechanic Arts.

"Besides its operations as a Society of Arts, begun last year and now in successful progress, the Institute is preparing to open some of its courses of practical instruction, and to begin the organization of an Industrial Museum."
THE FIRST BUILDING OF THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Now known as the Rogers Building

(In the background is the building of the Boston Society of Natural History)
"The munificent liberality which has enabled the Institute thus to persevere in its plans of practical education, notwithstanding the peculiar circumstances of the times, is at once an evidence of the wise foresight that blends with the patriotic activity of our people, and a guaranty of the future expanding utility of them."

In the following letter we find a suggestion of the "Scope and Plan of the School of Industrial Science," which was afterwards adopted, May 30, 1864, and was later developed into the regular system of instruction:

TO HIS BROTHER HENRY.

Boston, January 19, 1864.

... I think I mentioned last spring the great value of Ritchie's late inventions in connection with ships' compasses. These have now been extensively tested on board our national vessels, iron as well as wood, and are fast superseding all others. I could not in the space of a letter describe these admirable improvements, but will merely say that by enclosing a group of parallel needles in a hollow case of peculiar construction, and floating this case on a pivot in the midst of a vessel wholly filled with liquid and furnished with projections to correct currents, he makes a common compass, which is steady in its direction amid all the concussions and jars and pitching of the ship, and that by a further and refined arrangement he is able to read the indications of such a compass placed high above the deck, from the card placed on the same pivot and similarly floated, down at the level of the eye. He has secured his inventions abroad, and intends going to England in the spring. These inventions, as well as my gas contrivances and other original matters, will be figured and described in the proceedings of our Institute, which will, I hope, be published in the spring.
My health continues steadily to improve. I avoid all serious study and all matters of care, but have been able very satisfactorily to give my attention to the fortnightly meetings of the Institute and the Academy, which demand little effort, and, especially the former, are quite pleasant to me.

With the aid of Professor Runkle and Dr. Watson, a graduate of the Ponts et Chaussées, I am framing a course of applied mathematics for our Institute, reaching from the very elements up to the fullest demands of the scientific engineer. The same thing I shall do in applied physics, chemistry, etc., so as to present —

First. A general course for the benefit of those who have no disposition or opportunity for college studies, including mechanics, merchants, etc.

Second. Special courses, consisting of extensions of the former in the direction of Civil Engineering, Mechanical Engineering, Mining Engineering, Manufacturing Chemistry, etc. Tell me what you think of so extensive a plan.

I have lately received a bundle (from Stevens, I suppose), containing the plan of instruction under the direction of the Kensington Museum, and their catalogue of objects, and some of the pamphlets of the School of Mines on Jermyn Street.

I have been thinking that possibly I might be able through good friends in England to secure for the Institute a copy of the magnificent publication of British Patents, of which thus far only two or three copies have been bestowed in this country, one to the Patent Office and one to the new library in this city. Our Institute is of all the associations in this country the one most directly interested in possessing this work, and would make continual use of it.

The enclosed slip from the "Transcript" will tell you of the coming of the Second Regiment to pass the furlough at home, all having reënlisted. The same

1 William Watson, Ph. D., afterward Professor of Descriptive Geometry and Mechanical Engineering in the Institute.
is true of most of the Massachusetts troops. The plain history of this regiment will, I know, thrill you both. It tells a story of heroism rarely equalled. . . .

Owing to ill-health Mr. Rogers now resigned his office as State Inspector of Gas Meters and Gas.

TO GOVERNOR ANDREW.

Office of Gas Inspection, Boston,
February 1, 1864.

To His Excellency Governor John A. Andrew:

Dear Sir,—I hereby tender to your Excellency my resignation of the office of State Inspector of Gas Meters and Illuminating Gas. While asking to be relieved from its duties as early as practicable, I shall most cheerfully give such attention to them as my health permits, until other provision shall be made for their performance.

On accepting this honourable trust at your hands, which, as you are aware, I did with some reluctance, I was willing to forego for a time more congenial pursuits that I might organize on a just and accurate basis the system of inspection for meters and illuminating gas contemplated by the Legislature. Believing that I have accomplished this, I feel that I have a right to relinquish the work to others, that I may devote myself to those educational plans which are hereafter to make large demands on my energy and time.

As my enfeebled health, due in a large degree to the exposure and labours of the office, makes it important that I should be relieved from duty as soon as possible, I beg to ask your early attention to the subject.

I have the honour to be, with the highest respect,
Your obedient servant,

William B. Rogers,
Inspector of Gas Meters and Gas.
This was accompanied by the following:—

1 Temple Place, Boston,
February 11, 1864.

My dear Governor Andrew,—I have delayed sending the accompanying letter from a desire to save you, during your illness, from any needless care. Hearing that you were well enough to be out yesterday, I now enclose it.

With best wishes for your health, believe me,
Your friend,

W. B. Rogers.

W. W. Greenough, Esq., President of the Boston Gas Company, to Governor Andrew.

Boston, February 12, 1864.

Hon. John A. Andrew:

Dear Sir,—Professor Rogers has informed me, by note this morning, that he has sent in his resignation as State Inspector of Gas and Gas Meters. I need not say that under his administration the law has been an honour to the State, and that his standards of value have been gladly adopted by other States, and that his retirement from the office will be a loss and a regret to the whole community.

In conversation a few days since, I suggested to Professor Rogers that there was no objection, so far as I could see, to his taking a furlough for the purpose of investigating the condition of his specialty in Great Britain and on the Continent, and that such a journey, with the experience acquired since he has been at work upon coal gas, would prove most valuable to the Commonwealth, and to the various gas companies. Perhaps it is not too late to persuade him to withdraw his resignation, with this end in view.

His position, as Inspector, is one of great difficulty to fill properly, requiring in the first place the most unsullied probity, and, secondly, a large scientific
cultivation, two requisites not always easy to unite with good judgment and good temper.

With respect,

Very truly yours,

W. W. Greenough.

This letter was sent by the Governor to Mr. Rogers with the following endorsement:

COMMONWEALTH OF MASSACHUSETTS,
EXECUTIVE DEPARTMENT,
BOSTON, February 12, 1864.

MY DEAR SIR,—This suggestion has my very cordial concurrence. Can it be acted on without derangement of your own plans to your satisfaction?

I am always,

Faithfully yours,

John A. Andrew.

MR. ROGERS TO HIS BROTHER HENRY.

1 Temple Place, March 2, 1864, 9 A. M.

... William Preston¹ has been some time in Paris and will probably not return to England until he is nearly ready to come home, which, I suppose, will be after the middle of the present month. I do not expect from him much beyond useful hints and copies of external architecture and general interior division of space. He has sent home several useful suggestions of this kind.

The building we are now erecting is not intended for a Museum, but for a School of Practical Science, in which, for a year or two, some space will be given to collections. Hence the arrangement of laboratories, lecture-rooms, drawing-schools, etc., is what most interests me just now. ...

You will congratulate me on having at last relieved myself of the care and responsibility of the gas inspection. Yesterday I gave up the keys to young Stimpson, who has been my chief assistant since the

¹ Architect of the Institute Building.
beginning of the work, and who has been appointed
to the office at my recommendation. I shall, I trust,
be able before the summer to print a brief account of
my apparatus and processes. . . .

1 Temple Place, Boston,
March 15, 1864.

. . . I continue to improve in health, and can now
generally command some four or six hours of sleep.
The affairs of the Institute, including the general
and committee meetings, give me pleasant occupation
of a kind that interests me. At our general meeting
last Thursday, we had a very good account of the
most recent form of the hot-air engine by the in-
ventor, Mr. Ropes. It is getting much into use, and
we have a beautiful one erected for our Museum,
which, when not at work, acts as a comfortable
anthracite stove. This same Mr. Ropes drives about
the country and through the city in a very neat steam
buggy. . . .

What is the value of Page’s last book, of which I
see mention? I shall be glad to have anything from
such able hands as Thomson and Tait, and should
have been most happy to meet them and Joule on the
occasion you refer to. . . .

Boston March 30, 1864.

. . . The trip to Europe has been fully decided on,
and I have taken a state-room on the Asia to sail from
this port on the 8th of June next. . . . We expect to
remain absent until the 1st of November. About that
time some of the courses in the Institute will, I hope, be
opened, and I must be on the ground to direct matters.

Although I am slowly mending in health I could
hardly hope to recover my ability for work even in mod-
erate degree, without the relaxation of such a visit as
we have in view. . . . The annoyance of the perverse
public sentiment in England and the high rate of
exchange at this time would make us postpone the
trip, but for the consideration of my health and the
desirableness of some inquiries among the Technical Institutions. . . .

FROM HIS BROTHER HENRY.

Sudbrook Park, Petersham, Surrey,
April 1, 1864.

. . . I do sincerely trust you will come to Europe. It is just the stage or crisis in your organizing of the Technological Institution at which you can serve it best, and benefit yourself most in all future practical development of your noble work. Heartily will I help you and endeavour to share your fatigue as far as I possibly can. . . . If you do come, I will assist you as an amanuensis in the writing or completing your paper on your improvements in gas meters, etc. What a capital topic for the British Association meeting!

Through the columns of the "Boston Daily Advertiser" I occasionally get intimations of your appearances in public, which sincerely gratify me, such as your being on the platform and speaking at the meeting welcoming that good and noble Englishman, George Thompson, and your nomination for the Harvard College Committee of Visitors to the Lawrence Scientific School. In the latter notice, I saw LL. D. after your name. You have never told us when and where this honorary degree was conferred on you. It was due you long ago.

TO HIS BROTHER HENRY.

Boston, April 13, 1864.

. . . The two matters, which I shall especially desire to look into, when abroad, are, (1) the best means of collecting a large suite of models of elements of machinery, of bridges, roofs, arches and other works of civil construction and architecture, to be used as aids in our School of Practical Science, and (2) to examine the recent and best arrangements for work-
ing-laboratories and lecture-rooms. Our building will probably be roofed in by next winter, but the arrangement and fitting up of the interior I shall keep for a later time, when it may be done with a full knowledge of all that it is needful to provide for our objects.

At a meeting of the Academy last night, I met Brown-Séquard, who has lately returned to this country, he says, to reside. He spoke of knowing you and having seen you either in Glasgow or London.

In my last, I believe, I mentioned that I had engaged our passage in the steamer of June 8. Meanwhile I shall have as much as I can do (at half-stroke) to get matters arranged for our departure. Just now I am writing out my plan for the various branches of teaching, etc., of the School of Industrial Science. I hope to take with me a fund for the purchase of mechanical and other models, of which there is a great manufactory at Darmstadt.

The "plan for the various branches of teaching, etc.," was presented to the Government of the Institute and adopted by the latter at the annual meeting, on May 30, 1864. During Mr. Rogers's absence in Europe, it was published and distributed, under the title, "Scope and Plan of the School of Industrial Science of the Massachusetts Institute of Technology."

FROM THOMAS H. WEBB, SECRETARY OF THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY.

BOSTON, JUNE 7, 1864.

PROFESSOR WILLIAM B. ROGERS:

Dear Sir,—At the meeting of the Government of the Institute held yesterday afternoon, the following votes were passed, viz.:—

Voted, that the President be authorized to purchase for the Institute such models and apparatus as he may deem advisable, expending therefor an amount not exceeding £1,000.
Voted, that the sum of £250 be presented to the President of the Institute towards defraying the expenses of his contemplated visit to Europe.

It affords me pleasure to be the organ of communication on this occasion, and I avail myself of the opportunity to wish you a pleasant and prosperous voyage, an agreeable and satisfactory visit, and a safe return home with health regained and strength renewed.

Respectfully and truly yours,

THOMAS H. WEBB,
Secretary.

From Scotland Mr. Rogers wrote:—

TO MR. JAMES SAVAGE.

5 ELGIN VILLAS, SHAWLANDS, NEAR GLASGOW,
July 1, 1864.

We look with confidence, as well as pleasant anticipation for the coming of good words from Sunny Hill by Monday next.

Since E.'s letter to you we have been living quietly at Shawlands, making occasional visits to Glasgow, which we find a more interesting city than we had supposed, and to the beautiful and quaint places in this vicinity.

Last week we dined with Sir John Maxwell, the great proprietor of the neighbourhood, at his fine old baronial home of Pollok, and had the pleasant company of Mr. Stirling,1 a very cultivated man and a member of Parliament, and of other visitors, as well as the immediate family. E. enjoyed the occasion most heartily, as the true courtesy of these genial persons made us at once entirely at home. We are going this afternoon to visit, under Sir John's guidance, the noted Crookstone Castle, some miles distant on his demesne, where we are to see some memorials

1 William Maxwell-Stirling, afterwards Sir William Maxwell-Stirling, author of Annals of the Artists of Spain, etc.
of Queen Mary’s visit, and other ancient things, marking the barbarism of those strangely overrated feudal times. Not far from here, on the same immense estate, stands Haggs Castle, which, as now scrupulously restored, presents the best specimen, without and within, of a baronial house in the Elizabethan time. The quaint towers, one of them with a sharp, conical top, served for stairways from floor to floor; the loopholes, now glazed, each furnished with a little taper to guide the inmates as they pass. Over the strangely carved doorway of stone is this inscription:

1586
NI. DOMIN.
STRUXERIT. FRUSTRA. STRUIS.
ST. JOHN. MAXWELL. OF POLON. KN.
YGH. AND. D. MARGARE. CONYNHAM.
HIS. WYFE. BIGGET THIS HOWS.

At Mr. Walter Crums’s beautiful mansion, the Rouken, where we dined some days ago, we had a favourable specimen of the limit of modern elegance and comfort with the picturesque forms of an older style of architecture; and yesterday, at Mr. Hill’s, where we were also hospitably feasted, we were introduced to the home life of an affluent man of business, living at his country house.

Thus far we have found the subject nearest our hearts—the war at home—to be carefully avoided by our entertainers; and though we have inferred that the cause of the North is probably viewed by them with favour, we have no reason to think that it has their decided sympathy. The papers of Glasgow and, I believe, most of the merchants and gentry, side with the South. The “Caledonian Mercury” is very earnest on our side. E. is mailing the last number to you, in which you will find some just remarks about the Alabama affair. In Edinburgh the feeling is strong for the South, and I expect next week to have some use for my lungs in efforts to disabuse the prejudices of those we meet.
You would be amused by some of the tavern signs in this region. A little tippling-shop, half way between this and Glasgow, in the village bearing the name of Strathbungo, is adorned by a portrait of Burns and a barrel, with this inscription:

When neibors anger at a plea,
An get as wull as wull can be,
How easy can the barley bree
Cement the quarrel.
'T is far the cheepest lawyer's fee
To taste the barrel.

Since coming to this quiet home, we have not only recruited from the effects of the voyage, but have, I think, been gaining in general health, while getting rid of the tan impressed upon our faces by the windy voyage. We hope, dear father, to come back to you in florid health. That would for me be something strange, but, at any rate, I promise you that whatever new strength we gain, we will try to husband it wisely after our return, for your sake, as well as our own. . . .

The news of Grant’s South-side operations quite surprised me, but I am sure he knows best how to proceed in capturing Richmond. . . .

JAMES SAVAGE, ESQ., TO MRS. ROGERS.

LUNENBURG, July 4.

MY DEAR CHILD, . . . No thunder of artillery is here on our retired hill this morning to acknowledge the Independence of our country, which to-day must be celebrated with almost as great anxiety as exultation. A day of uncertainty it must seem to many; and since the first outburst of the diabolical war, as I have never for a moment felt any doubt of its result, none ought to be tolerated now. But I am of sanguine, and sanguinary complexion of mind, perhaps too much accustomed to have everything turn out as foreseen. Well! on this day the stars and stripes are waving on a high staff at Sunny Hill, and how near
to Richmond I am not prepared to express. Let me hope it can be over Petersburg as the last resting-place before the cockatrice's den. . . . That two hundred and twenty-five £ bill I sent William week before last was bought for twenty-one hundred and eighty dollars, the next day would have been twenty-two hundred and thirty dollars more, and last week, on Friday, might not have been procured for twenty-seven hundred. . . .

. . . I read last week a book entitled "The Potomac and the Rapidan." It was the work of the chaplain of the Second Massachusetts Regiment, Rev. Alonzo H. Quint. From the bloody day of Antietam, when he told of the fall of Lieutenant-Colonel Dwight, he goes back to relate the murderous service of the 9th of August at Cedar Mountain, and combines the gaps in the line of "such men as Abbott, Cary, Goodwin, Williams, Perkins, Dwight,—dead." Then returning to his date of writing, he enlarges: "And now we are sad at the loss of another, Major Savage, who died in Virginia of wounds received at Cedar Mountain; an honourable, brave soldier, refined, gentle, warm-hearted, and one of the purest-minded men I ever knew; an only son, whose parents may God bless. Nobody knew James Savage but to respect and love him." We ought not to desire more from the chaplain of his regiment, whose book is a happy medley of scrupulous facts and most intense sensibility. The author's strong right-heartedness neutralizes his Calvinism, and he resolutely asserts the religious emotions of many a one whose dogmatic phraseology he might esteem very deficient in precision.

Your affectionate father,

James Savage.
MR. ROGERS TO HIS BROTHER HENRY.

Edwards's Hotel, July 16, 1864.

I find we shall miss seeing Mr. Bright, whom I so much desired to meet, as he has gone down to Scotland and will not probably return until the winter.

We have been too late, also, to find Miss Cobbe, who left some days ago for Devizes, whence she goes to Ireland. This is quite a disappointment to E. But we hope to see her yet. . . .

Mr. Adams thinks the change in the Treasury Department no disadvantage, and ascribes it in no degree to Mr. Chase's apprehension for the finances of the country, but wholly to personal causes. He thinks Fessenden quite as able in financial matters as his predecessor, perhaps more so. He takes the most cheering views of home affairs, and though he does not look for a speedy close of the war, sees in the past the steady progress of the Northern cause, and in the future its certain success.

On Monday we shall go to the Kensington Museum perhaps; but I shall take things slowly and smoothly, intending to study several of the laboratories and museums at leisure. . . .

Under date of July 19, 1864, the Secretary of the Institute, Thomas H. Webb, wrote to President Rogers saying that in answer to a letter to Dr. William J. Walker (the first large giver to the Institute of Technology), enclosing a copy of Mr. Rogers's "Scope and Plan," he had received the following reply:—

DR. WILLIAM J. WALKER TO THOMAS H. WEBB, SECRETARY OF THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY.

At Home, Newport, R. I., July 2, 1864.

Dear Sir,—I received your note of June 29, with the pamphlet accompanying it: "Scope and Plan of
the School of Industrial Science of the Massachusetts Institute of Technology.” I have read the same with great pleasure, and am neither able nor desirous of altering it in any point for the better. It meets my unqualified approbation.

God speed the Institute.

When you write Professor Rogers, give him my best compliments and wishes for health, happiness and prosperous visit to Europe, with safe return.

I am, dear sir,

Truly and sincerely yours,

WILLIAM J. WALKER.

P. S. When can we complete and collect the subscription for second building? I wish to have it done.

MR. ROGERS TO JAMES SAVAGE, ESQ.

12 A HANOVER SQUARE, July 22, 1864.

MY DEAR FATHER,... The more than doubled cost of every shilling makes us ever thoughtful of even small expenditures, and the thought of the exchanges attends us constantly like a monitory shadow. . . .

The “Daily News,” which we read every morning at breakfast, gives a fair view of American affairs, and fights our battles with spirit and good sense. The “Caledonian Mercury” and a few other papers here and at Newcastle, etc., take the same high and honourable ground, but all the rest are either perverse or profligate in their devotion to the South.

We have called upon and been visited by the Adamses and Lyells, and this evening we are to take family tea with the latter. The death of Mrs. Frothingham has arrested some kind hospitality that the Adamses were preparing for us. We have been charmed by Mr. Adams’s calmness and confidence in regard to commercial affairs. He has had, and still has, a difficult task to perform, in meeting equally the distrust and hostility which are still so extensively
felt regarding the United States; but he deports himself as becomes his station and the great interests he represents.

We have just received a warm invitation from Mr. Waterston's friend, Mr. Flower, the Mayor of Stratford-on-Avon, to spend a week at his home after the close of the British Association at Bath. The meeting will be opened on the 14th of September and continue several days, Sir Charles Lyell being president. . . . My health is steadily improving, at what rate I cannot measure. . . . I am inspecting the museums and laboratory arrangements which are so numerous here, and have at least ten days more of easy, pleasant observation of this kind still before me.

Your affectionate son,

WILLIAM B. ROGERS.

TO HIS BROTHER HENRY.

12 A Hanover Square, July 23, 1864.

Since my last note from London we have been moderately occupied in visits to the South Kensington Museum and other places of interest, and I find that I have yet much to do of the same kind to make my survey at all satisfactory. . . .

Yesterday we called on Huxley for a few minutes. He is about setting out on his inspection of the fisheries. He asked very kindly after you. In the afternoon I went to Parliament House armed with a ticket from Mr. Adams, and had the high gratification of listening for an hour to Mr. Cobden's speech on the waste and absurdity of the system of government manufacturing of ordnance, etc. It was lucid and cogent in the highest degree. I got admission for a few minutes into the gallery of the House of Peers, where Lord Stratford de Redcliffe was speaking on the subject of the threatened revival of the Holy Alliance.

My sleep is uncommonly good, and by dint of great moderation and care I find myself gradually, though I
think surely, improving. I avoid crowds and ill-ventilated places, and endeavour to limit my inspections to what is most important, and to desist before I feel weary. . . .

I like the plan and arrangement of Archer's Museum [Edinburgh] even better than that at South Kensington for purposes of practical instruction, though it fell immensely short of the latter in the extent and splendour of its art collection.

To-day we make another visit there especially to see the School of Design. . . .

TO JAMES SAVAGE, ESQ.

Sudbrook Park, August 5, 1864.

. . . Some days before leaving London we breakfasted with Dr.1 and Mrs. Carpenter, near Regent's Park. He is now Registrar of the University of London, having general supervision of University College, King's College and other institutions included in the jurisdiction of London University. On seeing your photograph in E.'s book, and learning the name, he at once remembered meeting you at Bristol, where he was residing when you made your visit to this country. He and his wife retain a vivid recollection of you, even to the extent of repeating several piquant sayings of yours which E. and I, you may be sure, were delighted to recognize. The Doctor and his wife begged to be most kindly remembered to you, although they can scarcely hope to have impressed you as happily as you did them, and indeed all the other educated people to whom you became known. The Doctor said you were at Bristol chiefly to hunt up the history of the Lowells, pronouncing the o as in the interrogative "how."

Lady Lyell received your gift of our "tree" sugar with a most agreeable expression of surprise and grat-

1 Dr. W. B. Carpenter, author of The Principles of General and Comparative Physiology, etc.
ification, and desired that her kindest regards and
thanks should be sent you in return. She and her
husband have been as true to the cause of Liberty
and the Union as the warmest of our Northern patri-
ots. From what they have told us they have had
almost daily occasion to fight for us in their quiet,
persuasive way, and I am sure they have many a time
found this championship a task of no little delicacy
and annoyance. The ignorance of the so-called upper
classes here in regard to the institutions as well as the
geography of the United States is astounding. But
this would be unimportant, or at least quite tolerable,
were it not coupled with the prejudice and false symp-
athies which, partly through fear of republican pre-
dominance, and more through the activity of Southern
maligners and Northern copperheads, have acquired
such astonishing ascendancy in the British mind.
There is something amusing, though provoking, in
listening to the comments of people here on the Amer-
ican news. Last week an acquaintance gravely asked
me if there was not good hopes of the late peace prop-
osition from the South. The President's reply, as
reported here, is so true to the Northern heart that it
thrilled me, and it has made a strong impression in
our favour. A man said to me the other day, "Well,
your President calls for half a million more soldiers,"
and then, as if the thing were absurd, he added, "Can
he get them?" "Yes," said I, "as sure as you live
he will have them; our country has but lifted one arm
yet; wait till she smites with both."

To-morrow E. and I are to take a quiet dinner with
Dr. Hooker who, with his father, Sir William, has
charge of the wonders and beauties of the Kew
Gardens.

But I feel that I must strive first to gather such
strength as may enable me to do my important work
at home. A week hence we shall probably move
to the Continent for a brief visit to some of the
Museums and Industrial Schools. . . .
FROM JAMES SAVAGE, ESQ.

SUNNY HILL, August 29, 1864.

MY DEAR WILLIAM,— The destruction of Temple Place will be consummated, I suppose, before you get home. What compensation may be had by those earliest occupants who built the last houses in the Court is to be known only when the sufferers are called on to pay their proportion of the expense of the abominable improvement. It may be that the money value of the houses will be enhanced, but I had rather have given $1,500 to prevent the cutting down and cutting up, than gain twice that sum in sale of my estate. Mr. Lee and myself were the earliest to build on the old Washington Garden, and my hope was to be permitted to die in the house erected by me thirty-two years ago. Still, I may have that satisfaction; but all manner of carts and trucks will pass the same hour of my funeral through the vulgar highway before my door. Such, probably, are common evils in all improvements of cities; but here there is no pretence of accommodation by making a street between Winter and West streets, unless one, two or three may call it public accommodation, that their estates, respectively, should be sold at a hundred per cent. advance on cost, and mine, that I don't want to sell for any price, would not bring twenty per cent. above.

You must not indulge in anxious moments about any report of great or petty disaster to our holy cause. Delay is not defeat. The Georgia field is almost as ripe for the harvest as that of Virginia; but what a harvest can either yield! As to the degree of destruction which the rebels have brought upon their native States, in opposition to their true interest, it is likely to be remembered a term equal to two human generations, if not more.

What an event is the coming of a stranger to our house! Mr. Clapp bounced in on us last Saturday
forenoon from Fitchburg, to which some business matter had brought him the day before from Boston, and so gladly we detained him till this morning. I have invited Dr. Gannett to give us a sight of his reverend face, though we cannot have the pleasure of hearing him preach, as his would only be a flying call. . . .

. . . Perhaps you may obtain by the steamer that shall take this, advice of the doings of the great caucus to nominate a candidate for President on the part of the opposition, including all the traitors from every part of the United States, except those in open rebellion. No curiosity is felt about the actual names, but very much, above all, to know how the grumbletonians will coagulate, and what State, or States, the combined force can command. Discord may be prevented by policy in the nomination, but the November election may be a disappointment to the rowdies. What sort of moral force can be wielded by the several clans that make Amos Kendall, the old huckster of politics fifty years ago, their leader? My opinion may be good for little, but whoever is set up will be knocked down, unless I read signs wrong. You must, I fear, lose your vote for President, as the election for Electors is on an early day of November; but no matter, Massachusetts will give five-and-twenty thousand majority, perhaps more.

Yours affectionately,
JAMES SAVAGE.

MR. ROGERS TO HIS BROTHER HENRY.

Sudbrook Park, Sunday, August 14, 1864.

. . . Our visit to the Chadwicks 1 yesterday evening proved a very agreeable variety. I found him as you had described him, full of statistical knowledge and very communicative. It was refreshing to find him so sound in his views, not only on sanitary matters, but on the affairs of our dear country. . . .

1 Later Sir Edwin and Lady Chadwick.
He told me that having had an unformed purpose of visiting the United States this autumn to look into sanitary and educational matters, he lately spoke of it in the hearing of a young nobleman, who at once expressed astonishment, said he was mad, that he would scarcely be safe personally from insult, and that his son, whom he thought of taking, would be sure to be entrapped and carried off to the army. . . .

A week ago I received a letter from Dr. Webb, the Secretary of our Institute, enclosing a copy of a note to him from Dr. Walker, the great contributor to our funds, in which the Doctor expresses much satisfaction with the plan of the school set forth in the pamphlet, of which I had sent him a copy just before leaving. I am just now at a loss what to advise the government of the Institute as regards the purchase of models, etc., which I was authorized to make. The enormous rate of exchange, making the articles cost triple their ordinary price, has led me to refer the subject to the government for further action, which, of course, I shall await.

FROM HIS BROTHER HENRY.

5 Elgin Villas, Shawlands, Pollockshaws, near By Glasgow, August 19, 1864.

. . . Do, I entreat you, refrain from over-fatigue of body and mind. Remember you have undertaken a work of majestic dimensions, demanding much time, and careful, slow elaboration, a work which, from its very nature, no mortal can mature rapidly. Be content to look a little into the field before you for future selection of practical ideas and fit specimens, etc., for your Institution, but do not, I beg of you, attempt at present to do more than explore this field in a general way. I am sure you are acting wisely in dissuading your friends in Boston from purchasing much at present. Plan your Technological Museum and College well, begin them on the sound principles you have so admirably set forth in your pamphlet on the "Scope
and Plan,” etc., open up some of the channels for the future reception of ideas and specimens, and all judicious promoters of your Institution will tell you that for one season, or year, you have done amply enough. . . .

TO HIS BROTHER ROBERT.

HÔTEL DU LOUVRE, PARIS,
August 26, 1864.

. . . I have had a very pleasant visit to the Conservatoire des Arts, etc., and am looking leisurely at other institutions especially in my line. But unluckily here, as in England, all the professors are taking holiday in the country. As far as laboratories and lecture-rooms are concerned I believe we have little to learn either in England or Paris. . . .

Near our hotel is a beautiful gas-engine of one-horse power, Lenoir’s patent. It is operating every day. The mixture of air and gas introduced alternately on the two sides of the piston is exploded by a Ruhmkorff coil, which is automatically connected with the induction valves. You would be charmed to witness its action.

The other day, as I walked along the superb Rue de Rivoli towards the Conservatoire, I was attracted into a little shop about fifteen feet square, where a Frenchman was exhibiting and glibly explaining various striking electrical and telegraphic apparatus. The series of experiments included deflagrations, ringing bells, beating a drum by a hammer concealed inside, weaving with a small Jacquard loom, etc., all by the action of a battery and magnets in the room below. Charge, 5 cents. I shall try to find the arrangement by which the drum, suspended by the two conducting wires midway from the ceiling, is made to beat the rapid tattoo.

Just now we have more cheering news of the success of Farragut and of Sherman’s progress. Our great concern springs from the apprehension of political
complications connected with the presidential campaign. Surely the people of the free States will not madly risk the fate of the country by any attempt to bring forward a new candidate. Do, my dear Robert, when you write, tell me what is the aspect of the political campaign, which just now, I fear, occupies more thought at home than the prosecution of the war.

TO JAMES SAVAGE, ESQ.

Hôtel du Louvre, Paris,
August 26, 1864.

Our fellow-passenger, Mr. Stanwood, of Boston, who sails by the steamer of the 3d prox., kindly takes charge of the little volume containing Goldwin Smith's admirable letter on Southern independence. Amid such general misconception and hostility, it is refreshing to find such men, who are the leaders in liberal thought in Europe, clearly understanding and heartily sympathizing with our cause.

To-day we are cheered with the news from our dear country, which becomes dearer to us every day as well because of this great battle of humanity which it is now fighting for the world, as because we continually see proofs of its truer and higher civilization as compared with the Old World.

September 2, 1864.

... I am daily occupied with visits to schools and museums, and with inquiries relating to models and other apparatus of instruction for the Institute, but I shall at this time expend for the latter only a part of the amount allowed me for the purpose, arranging with agents here and in England to make further purchases by catalogue in more favourable times. Mr. Wood, the Paris member of the firm of Hovey & Co., who has been very polite to us, will attend to the payments in behalf of the Institute, thus relieving me of much trouble.

On Monday I was present at the meeting of the
Académie des Sciences, where I met one or two savans whom I knew, who very pleasantly introduced me to others. Though the meeting was thin (about thirty), it included many names renowned in science, such as Payen, Dumas, Chevreul, D'Archiac, Péligot, etc.

Our Consul here, Mr. John Bigelow, formerly joint editor with Mr. Bryant of the “New York Evening Post,” has been very kind. He yesterday invited a number of pleasant people to dine with me at a club-house, where we had a really good time, discussing American affairs chiefly, for with the exception of two we were all Americans, and of the loyal stamp. The late war news gives satisfaction, but the elections are dreaded. For my part I hold to the conviction that “Honest Abe” will be re-elected, and I assert it everywhere.

FROM CHARLES H. DALTON.

51 FRANKLIN St., BOSTON,
September 13, 1864.

WILLIAM B. ROGERS, ESQ.,

Dear Sir,—The Massachusetts Institute of Technology at a meeting of the Government June 6, 1864, Voted “that the sum of £250 be presented to the President of the Institute towards defraying the expenses of his contemplated visit to Europe.” Accordingly I now enclose you herein first bill of exchange, Blake Bros. & Co., on Edward Moon & Co., Liverpool (payable in London) at 60 days for £250, for the purpose aforesaid, and beg your acceptance of the same.

Hoping you will derive great benefit from your tour and return with improved health, I remain, dear sir,

Yours most respectfully,

C. H. DALTON,
Treasurer, M. I. T.
On the back of this letter we find in Mr. Rogers's handwriting: "From Charles H. Dalton, September 13, received September 29, answered October 1, when I reënclosed the draft for £250 herein mentioned, preferring to adhere to my previous decision made known to Dr. Webb and Mr. Ross."

FROM M. D. ROSS.

Boston, September 9, 1864.

MY DEAR FRIEND, . . . Dr. Walker has recently written a letter to Mr. Beebe intimating that he wants to do something more for us, and asks if we can't raise $50,000 in place of $20,000. Mr. Edmands promised me to-day, in conversation on this subject, . . . that he would put his shoulder to the wheel, and endeavour to meet Dr. Walker's requisitions, and, as an evidence of his promises, he subscribes himself an additional thousand dollars. Mr. Little is also at work. . . .

Yours very truly,

M. D. Ross.

FROM THE SAME.

Boston, September 20, 1864.

. . . The fact is, we shall be all in a state of excitement here until after the Presidential election, and cannot expect to be calm enough to do much in the Institute before January. In fact, as I wrote you in my last, we do not incline to undertake much more this winter than we did last, partly on account of saving your strength and partly that we cannot do very much in the way of organizing classes until we get into the new building, which, by the way, is getting along very well. I think we shall get the roof on before January. . . . We shall all heartily concur in whatever you may deem it best to do. . . .
TO JAMES SAVAGE, ESQ.

TORTWORTH COURT, GLOUCESTER CO.,
September 23, 1864.

DEAR FATHER,—I am sure you will heartily sympa-
thize in the pleasure which E. and I are having
in the hospitable care of Earl and Lady Ducie, who,
through a former acquaintance with Henry and an
accidental meeting with us in our transit from Bou-
logne to Folkestone, were prompted to the kind invi-
tation which has brought us here.

We reached Bath on Friday evening and were at
once taken to the pleasant quarters prepared for us by
those hospitable ladies, the Misses Solly, in the upper
part of that beautiful city. We remained with them
until the afternoon of Wednesday last, enjoying, with
several other guests, the amenities of a most charming
home, and sharing quite as much as was good for us
in the activities of the scientific meeting. . . .

Lyell’s opening address, which we were not in time
to hear, was very judicious and instructive. The pro-
cedings of the sections have not brought out any
striking discoveries or speculations, but have been
full of interesting details, especially in the way of
local geological research. The closing scene was a
banquet at Clifton, which came off yesterday, and to
which the leading members and their families were
invited. We had tickets, but preferred coming to
this home of elegance and quiet. You know what
municipal banquets are. We shall probably remain
at Tortworth Court until Monday morning, when we
leave for Stratford-on-Avon, where we are expected
by Mr. Flower.

I shall not attempt any description of the noble
mansion and surrounding domain of our kind host.
It is situated about two miles eastward of Charfield,
a village on the railroad from Bristol to Birmingham,
half an hour’s ride by cars from the former city.
The Earl is a young man (less than forty years), of
very prepossessing manners, and of generous culture and sentiments, understanding better than is usual with his class the nature of our contest at home, and sympathizing with us. . . . Henry, who came with us from Bath, took leave this morning, and will rejoin his family to-morrow. Dr. Hooker, of Kew, and Professor Balfour, of Edinburgh, are of our party. E. is now out on a drive with Lady Ducie and Mrs. Hooker to Thornbury Castle, while the Earl and the two botanists have gone on a tramp of five miles to Barclay Castle, the residence of Lady Ducie's aunt. Yesterday I made a similar journey with the Earl.

Our hearts are gladdened by the brightening news, but we have never desponded, and your ever cheering words have given us confidence even in the darkest time.

I am glad that we came to the Bath meeting, for it proved to me the unchanging kindness of many old friends and enabled us to meet many liberal people, who hold just views of American affairs.

FROM C. H. DALTON.

BOSTON, October 28, 1864.

WILLIAM B. ROGERS, ESQ.:

My dear Sir,—Your letter of 1st inst. I duly received reënclosing the bill of exchange for £250, which amount for the time being I place to the credit of the Massachusetts Institute of Technology, subject to the action of the government at their next meeting, when I shall submit your note to me. It needed not this new instance of your devotion to the cause of the Institute for us to understand how faithful a friend it has in you. I enclose a photograph of the new drawing for the seal and hope you will like it. I trust, my dear sir, that you have found health and strength, and will, in safety, return to your home.

With great respect,

Your obedient servant and friend,

C. H. DALTON.
My dear Henry,—My letter, written at the close of our voyage, will have given you news of us to that time. We reached home early on Thursday morning, to find all well, and glad enough to have us back again. . . .

By a short note from Robert yesterday we learn that he is well and in capital spirits. He is still annoyed by his arm, but the suffering must have abated, as when at Sunny Hill he showed much of his former gayety and activity.

All hearts are now engrossed by the election. Every night we have had torchlight processions and illuminations, but conducted on both sides with perfect good order. This morning Mr. Savage and I deposited our votes for “Old Abe,” etc.; and though we were in the midst of the Irish, who nearly all vote for McClellan, there was no noise or disorder. Perhaps in New York some frauds and violence will be attempted, but they would quickly be put down.

The army vote, if fully polled, would give, at least, nine tenths for Lincoln! What a fact is this to demonstrate the safety of our country from military usurpation and hero-worship, so often gloomily predicted by the enemies of our republican institutions. Indeed, I think that this is one of the grandest developments of the time. Our soldiers in this crisis forget the prejudices and frailties of the camp to fulfil their duties as citizens; so much for the principles in which they have been brought up, for the moral strength that belongs to them as freemen. There is no doubt of Lincoln’s re-election, but we are anxious to make his majority so overwhelming that no shadow of hope shall be left in the South or among Southern sympathizers. The copperheads have been resorting to all dishonest and even treasonable pleas and devices to
carry their candidate, but their plots are known, and will only recoil upon their own heads. The accession to the republican ranks in this crisis of such men as George Loring, Caleb Cushing, etc., who have, until lately, been bitterly hostile to the administration, shows the progress of public opinion and the march of truth. . . . McClellan may carry three States, but the majority for Lincoln will be immense. . . .

We found a sharp northwest air and clear sky, that were as exhilarating as champagne on our arrival. We have now rain and the softness of Indian summer. . . .

Please remind Mr. Heath-Wilson\(^1\) to give you, for me, the title of the French work on architecture which he promised to give me before I left. . . .

The day after my arrival the government of the Institute had a special meeting to welcome me back, which was quite gratifying. . . . If you can learn anything definite from Professor Rankine\(^2\) regarding the success of Siemens’s furnaces, or obtain any printed account of their recent application, please communicate with me. . . .

3 P.M.

The election returns are thus far even better than we expected. Professor Goldwin Smith, of Oxford, is here, a great favourite. He is astonished at the good order, as well as the perfect freedom, of the election campaign.

1 Temple Place, November 15, 1864.

Your most welcome letter of the 29th ult., with the enclosed photographs, came duly to hand, and was so grateful to us that I did not begrudge the $1.30 postage. Since our return here we have begun the practice of prepaying our foreign letters, as I must ask you to do likewise, as long as the present exchanges continue.

Before this reaches you, you will have had full accounts of the late election, which in its progress and

\(^1\) C. Heath-Wilson, Scotch writer on architecture.

\(^2\) Author of a work on the steam engine.
result is the grandest demonstration yet made of the earnest patriotism and unflinching determination of our people, no less than of their ability, to observe and maintain order in a most exciting crisis. You remember how confidently I asserted that Mr. Lincoln would be reëlected? But the most sanguine of the Republicans did not dream of such a triumph as has been achieved. As the day approached, the conviction deepened in the heart of the nation that the issue was that of victory over rebellion and slavery, or an ignominious truce with them, followed by yet more disastrous war; and the conscientious and patriotic of all parties sprang to the polls, resolved to vindicate the cause of liberty and the Union, by sustaining the administration which had thus far borne our banner fearlessly, if not always with wisdom and success. Great numbers of Democrats of the genuine old Jackson style came forward towards the last to give their help to the good cause, and scarcely any but the really disloyal and those whose selfish spite and disappointed ambition maddened them beyond cure, voted for the nominee of the Chicago Convention. You will see by the returns, that in spite of the large corrupt vote of New York city, the whole State gave a good majority on the right side. Kentucky was, of course, expected to favour McClellan, and the railroad monopoly of New Jersey, which governs the politics of that State, was from the beginning devoted to the same interest. But is it not a grand expression of the nation's thought and determination that unites the voices of all the other States in behalf of a vigorous prosecution of the war, to the utter extinction of the rebellion and of slavery!

You will see two short speeches of Mr. Lincoln's, pending and after the election, which are such utterances of manly, just and generous patriotism, in language so simple and sincere, as must warm the hearts of all lovers of freedom and humanity. He has never been so much beloved and confided in as now. Com-
pare these plain words of such weight and grandeur in their import with royal and imperial messages, or the elaborate rhetoric of orators and diplomats abroad, and you have a true type of our American polity, as compared with that of the Old World.

I do not know that I mentioned in my last my gain of weight from 126 to 133 pounds. With constant care and abstinence from excitement, and especially with the cultivation of a cheerful spirit, I hope to gradually overcome the disturbance of head and other organs, still lingering. You may imagine how happy we are in being once more in our own dear home, where we daily visit your cottage in loving thoughts and wishes, glad to be able, as we now are, to picture exactly your home scenes, and to feel almost as though we were with you.

BOSTON, November 22, 1864.

... Just now the fair for the proposed Sailors' Home is near its close, with a prospect of reaching a net receipt of $200,000. At the same time all the good people here and throughout New England have been busy providing for the soldiers in camp and hospital a Thanksgiving dinner, on Thursday, the 24th. Tons of turkeys, pies and other eatables have been sent to the Potomac army and other parts, and now we are sending to the soldiers in the harbour and the hospitals and camps herabout loads of good things to make them merry on the occasion. Probably not less than 20,000 turkeys have been thus disposed of by the Boston Committee.

I send you a copy of Mr. Everett's Faneuil Hall address before the election, which, when you have read, you will probably desire to forward to Mr. Robie.

Mr. Alger [Rev. W. R. Alger] has just called on his way to the Lowell Institute, where he is to read the ninth lecture of a course prepared by your old acquaintance, Henry Giles,¹ who at the close of the

¹ Henry Giles, Irish-American lecturer and essayist.
eighth, last week, was struck with paralysis of a very serious nature. The poor man had laboured all the summer, in spite of weak health, in writing these admirable lectures, but the delivery of them was too heavy a tax upon his powers. We must all be careful.

We are looking with deep interest for news from Sherman. His march is not likely to be seriously obstructed until he comes near to Savannah or Augusta. I have at no time since the commencement of the war seen such a general cheerfulness and confidence, and such an almost universal devotion to the government.

We shall commence our Institute meetings on December 1, and will meet thereafter on the first and third Thursday of each month. The purchases for the Institute which I made in Germany and Paris have arrived in excellent condition, and will be put to use in the course of the winter. I hope before long to hear of those ordered in London.

FROM HIS BROTHER ROBERT.

1121 Girard Street, November 12, 1864.

Do not, my dear William, when feeling your strength improved, allow your interest in the Institute to draw you into fresh labour. If you can continue a quiet, unanxious life during the winter, with just so much to occupy thought and body as to give wholesome recreation, you will doubtless continue to improve under the comforts and cheerful influences of your own happy home. I fully enjoy with you the satisfaction you have in once more being there and in getting back to your own beloved country. Is it not indeed a proud privilege to belong to such a land; and now that we have triumphed in the recent great struggle, and are sure to triumph in the other pending in the field, may we not with fuller heart glory in our inheritance? I have never felt such an unmixed, exultant satisfaction on any political occasion as when
on Wednesday morning the noisy salutation of the little urchins greeted me with: "Salt River Ticket, sir? Salt River Ticket?" and "Say, Jake, have you got any more Salt River Tickets?" "No, they are gone;" as showing even at that early hour the returns had come in, and that our success was certain and complete.

I thank you, my dear William, for the magnesian wire, which I shall have much pleasure in showing. My own curiosity did not rest long before an inch of it burned. How extraordinary is the light emitted. . . .

On December 1, 1864, the Society of Arts held its first meeting of the year 1864–65, of which the following report appeared in the "Boston Journal:

"At a meeting of the Massachusetts Institute of Technology, at their rooms in Mercantile Building, Summer Street, last evening, the President, Professor Rogers, gave a very interesting account of his observations during a recent visit to Europe among the scientific schools of the Old World. Among those alluded to were the Kensington Museum, near London, similar institutions in that city, Edinburgh, Paris and Carlsruhe. The result of his observations has been the conclusion that we in this country have a great deal to learn in the arrangement of museums of practical art and science, and much also to learn in regard to the auxiliaries of practical art education. Yet our educational system is in many particulars abreast of the Old World schools, and in the elementary principles decidedly in advance of them. Looking to scientific education and methods of instruction, there is such vitality, quickness of observation and ready, flexible application belonging to our countrymen, that we have already embraced some of the most important ideas introduced in Europe. What is wanted is for American students to give time enough to secure thoroughness in the study of applied sciences. The students at the
Central School of Arts and Sciences in Paris are required to pass three or four years in the study of a very large range of sciences, including mathematics, chemistry, geology, mineralogy, drawing, engineering, building and indeed all the branches of industry to which science is applied, thus laying a broad foundation of scientific study, and building upon it practical education.

"Great progress has lately been made in England in the matter of scientific and art education. The South Kensington Museum is a vast collection of natural specimens and artificial productions drawn from all parts of the globe, and weeks might be spent by the student in examining its admirably arranged articles, which are grouped for utilitarian and not scenic effect. For instance, a hat will be observed standing on a glass case, and in the case will be found every article that entered into the construction of the hat, and the process of manufacture, thus presenting all the materials, natural and mechanical, which produced the final result, at one glance. The Conservatory of Arts in Paris is exquisitely scientific in its arrangement, but except scientific observers, ninety-nine out of one hundred visitors would gain more instruction at Kensington Museum than here, because it is more practical. The Polytechnic Institute at Carlsruhe, which is regarded as the model school of Germany and perhaps of Europe, is nearer what it is intended the Massachusetts Institute of Technology shall be than any other foreign institution. It has an extensive museum of models of all conceivable mechanical combination, chiefly of metal, which are the objects of constant study by the pupils. Another extensive collection of models represents structures, as roofs, arches and everything else that concerns engineers or architects. Another collection represents forms used in mining,—the mines themselves as well as implements,—and so all through the practical arts. There are also series of laboratories adapted to the different
branches of chemistry. Every part of the establish-
ment is designed for use, and not for show. On the
basement floor is a series of workshops, where the
students are given practical instruction. The narra-
tion of the President was highly instructive. It was
interspersed with eloquent thoughts springing from
the topics treated, and was listened to with evident
interest and gratification.

"The Institute proposes to receive pupils for in-
struction the present winter. Its friends will have an
opportunity of securing for it a munificent donation
of $50,000 by subscribing a similar amount before the
1st of January next."

MR. ROGERS TO HIS BROTHER ROBERT.

1 TEMPLE PLACE, December 5, 1864.

. . . I am doing very well; my sleep is better than
it has been for a long time, though still capable of
improvement. I do every morning what I could not
have done some months ago,—take a merry dance to
my own whistling in my flannel underclothes, blessing
the memory of old "Dupont," who in Williamsburg
taught me some of the jig steps.

How intensely interesting are the small drippings
of news we get of Sherman through the rebel chan-
nels! A few days will surely bring us thrilling re-
sults of some kind, and I think they will be auspicious
ones. . . .

What you say of the aniline colours from petroleum
is very interesting. Where is the manufacture car-
ried on? . . .

TO HIS BROTHER HENRY.

1 TEMPLE PLACE, December 20, 1864.

. . . By a letter just received I am led to expect a
visit from Robert in Christmas week, as the college
will suspend work for several days. This will be a
great joy to all the household, for every one, from the
servants up, entertains a sincere love for him. How we wish that you and E. and dear M. could be with us also! What a happy holiday we would make it! But some of these years we must all get together, either on this or the other side of the sea. I long more and more for the society of my precious brothers and other dear ones, for which other companionship is no substitute.

I had intended writing you by last week's steamer, but was prevented by a journey to Greenfield, where I made an address before the Board of Agriculture. I had repeatedly promised this to the Board, and finding it would have a useful influence in connection with the Institute, and being earnestly pressed and even telegraphed for by the government, I determined, in spite of the very cold weather, to comply with the invitation. . . . I had a fine audience, and did some service. Agassiz lectured the following evening, but I returned too soon to hear him. As you may judge from this, my health is much improved. Indeed, I sleep better and have more vigour and alacrity than I have enjoyed for the last eighteen months. I am doing but little studying or writing, and chiefly occupy myself in a light way with Institute matters, which are making satisfactory progress. We expect to organize classes in mathematics, drawing, physics, chemistry and French by the 1st of February, and thus to have some material prepared by the time we are able to begin operating regularly in the new building, about a year hence. . . .

You will see that Sherman's march, believed to be so full of peril, has been almost unchecked. We are daily expecting news of his capture of Savannah. His able subordinate, Thomas, has been gaining victory after victory in Tennessee, until Hood's army has been sent flying southward with the prospect of being wholly used up. The expedition by sea, against Wilmington, cooperating with the movements of Sherman and Forrest in South Carolina, will most
probably secure possession of the headquarters of blockade-running, and will cut off Lee's supplies, and his chance of retreat in the direction of South Carolina.

On December 27, 1864, Mr. Rogers prepared for the Governor, as on previous occasions, a brief statement of the progress of the Boston Society of Natural History and the Massachusetts Institute of Technology, to be used by him in his annual message to the Legislature.

TO HIS BROTHER HENRY.

January 1, 1865.

... The Governor's message, which will be sent in and printed to-morrow, contains a notice of the Institute and the Natural History Society prepared by me at his request. Also a recommendation to republish Dr. Gould's "Invertebrate Animals of Massachusetts," with additions. ... I do trust that your next letter will give a better account of your health.

The passages referred to may be found in the Message of Governor Andrew delivered on January 6, 1865, pp. 59-63.

TO HIS BROTHER HENRY.

1 Temple Place, January 17, 1865.

... The papers will convey the news of Mr. Everett's death, and the universal mourning it occasions throughout the nation. I sat near him on the platform in Faneuil Hall on Monday a week ago, when he made his last public address. He spoke eloquently in behalf of the suffering people of Savannah; and in answer to his call and that of a large number of our leading citizens, a vessel was despatched on Saturday freighted with more than $30,000 worth of food and clothing for their relief. A few hours after
her departure the voice that had so stirred us on this occasion, and had for the past three years so earnestly argued and plead for freedom and our righteous cause, was hushed forever. The patriotic labours of these few years will secure to Everett a far nobler and more lasting fame than all the work of his preceding life, for they will give him an unquestioned place among the most eminent of those who, in these times of trial, have served their country and humanity.

Along with this sad news you will have the joyful information just received of our capture of Fort Fisher, the stronghold below Wilmington which, through some misunderstanding, General Butler lately failed to attack. We may expect Wilmington ere-long to fall. Even now the career of the blockade-running is pretty nearly ended. Soon we shall hear of Sherman in South Carolina, aided in his progress by the returning loyalty of the Georgians. You see how much there is to cheer you in the aspect of our public affairs.

We, yesterday, had at dinner Hon. Auberon Herbert, youngest son of the Earl of Carnarvon, a Fellow of All Souls, Oxford, who brought me a letter from Professor Phillips. He is a very pleasing, frank young man, and will be much benefited by what he learns of our schools and other institutions.