

Founding of the Lawrence Scientific School at Harvard University, 1846-1847: A Study in Writing and History

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Introduction

In the late 1840s, several events occurred in science in the United States to mark that time as a watershed in the organizational history of science in the American context.¹ The establishment of the Smithsonian Institution with Joseph Henry as its head and the transformation of the Association of American Geologists and Naturalists into the American Association for the Advancement of Science were two major developments at the national level. The establishment of scientific schools at Yale² and Harvard indicated the growing concern that academic institutions meet requirements for advanced and specialized education in science. These multiple developments indicated the importance of provision for education, research, and organizational community as underpinnings for the growth of science.

This paper examines one of these institutional developments: the founding of the Lawrence Scientific School at Harvard during the academic year September 1846 - August 1847. The approach, however, is not through established historical narrative or analysis based on documentary sources. In fact, the goal is an illumination of the documents through historical events—quite the opposite of ordinary historical methodology. This approach is possible in part because the time period and topic have been studied by other historians.³ The goal of the paper is to explore the nature of written communication in a particular historical context, to show how writing related to events in a narrowly defined time period, but, in doing so, to suggest a perspective that should have wider historiographic interest. An overview of the history itself will serve as matrix for the focus on documentary concerns.

Founding a School: Summary

By the later 1840s, Harvard College⁴ had accumulated several professorships in the sciences that gave the potential for advanced or specialized instruction. Joseph

Lovering (1813-1892), Hollis professor of mathematics and natural philosophy, made no significant contribution to scientific knowledge; nonetheless, he was an effective teacher of physics. John White Webster (1793-1850) was Erving professor of chemistry and mineralogy, teaching in both the medical school and the college. He was also interested in geology. Benjamin Peirce (1809-1880), Perkins professor of mathematics and astronomy, was one of the central figures in Harvard science of the nineteenth century and was important on the national scene. The Rumford professorship on the application of science to the useful arts had been used to supplement the curriculum through instruction in practical arts and sciences, but in 1846-1847 the position was open. Asa Gray (1810-1888) had been appointed in 1842 as Fisher professor of natural history, with the significant proviso that he could limit his teaching to his own field of botany (though in 1844 he extended his responsibilities to the full range of the professorship). The achievement of a complementary position in zoology occurred in 1846-1847 when the Hershey professorship of anatomy was separated from the medical school and given to Jeffries Wyman (1814-1874) to teach only in the college. William Cranch Bond (1789-1859) and his son, George Phillips Bond (1825-1865), while not involved in classroom teaching, carried out the work of the recently established observatory, as director and assistant observer respectively, and were engaged in significant research. During the year, the observatory received and installed one of the two largest telescopes in the world at the time (the other was at the Pulkovo observatory in Russia).⁵

Early in 1847, Eben Norton Horsford (1818-1893) was elected to the Rumford professorship and the Harvard Corporation approved an overall plan for an advanced school, a concept that had been under discussion for some time. Over the next several months, planning for the school began to take shape; an announcement concerning it was published in the second edition of the 1846-1847 university catalogue. In fact, as there was no money for the school, all the plans called for restructuring available resources or getting extended duty from the personnel on hand. It was a cautious move, both fiscally and pedagogically.

In early June 1847, the financial logjam was broken with a major donation by industrialist Abbott Lawrence (1792-1855), who also provided an organizational scheme and a set of priorities. By the end of the academic year 1846-1847, the new institution had been given the name Lawrence Scientific School. Throughout the year, Swiss scientist Louis Agassiz (1807-1873) had been in Boston for his Lowell Lectures, and it was part of the current thinking that he should somehow be attached to Harvard University. In September 1847, Agassiz was chosen professor of zoology and geology in the school. Filling the chair of engineering proved more difficult; it was not until 1849 that Henry Lawrence Eustis arrived from West Point to take up that position.

Communication in Context: General Considerations

The foregoing summarizes the highlights in Harvard science during the seminal year 1846-1847. What we know of that history is dependent on the various historical accounts, but ultimately on surviving written documents.

Elsewhere, I have given the result of a study of the overall character of the science communication system at Harvard in this time period.⁶ Through a generalized and partially quantitative examination of a corpus of more than 600 documents from the period, it is evident that the Harvard community was significantly dependent on writing, not only as a means of interaction with the external American and European scientific communities, but for local and internal purposes as well. Writing was the major form of communication between the main Harvard campus in Cambridge and its financial operations, governance, and medical school in Boston. Writing was also used locally, in Cambridge, to supplement face-to-face communication, ranging from brief reminders or requests to restatements or elaborations of points or reports that might have originated in conversation. While some of these, and formal documents such as minutes, were intended "for the record," others had a more action-oriented, instrumentalist function that was a part of the social and organizational mechanism of the university community. A functional analysis of the individual documents demonstrated a wide variety of purposes in writing; in fact, only a minority were primarily to record what happened.

While the major players in the founding of the Lawrence Scientific School communicated in writing, they also had sufficient opportunity for oral communication. The Corporation members, for example, met regularly once each month (sometimes more frequently), and there were social and other occasions, both formal and informal, when they could exchange views or transact business. This communications network was an integral part of the historic context that gave rise to the scientific school.

Text(ure) of Social Construction in History

Writing as a mode of communication has a particular role in social life, and it is part of the mission of the historian and the archivist to uncover it. "Uncover" is, for many situations, the correct word, just because writing in literate societies is often taken for granted. This paper attempts to bring to the foreground acts of communication that were, in fact, part of the underpinning for a series of "events"—in the sense of notable happenings as well as social mediation. It is an attempt not to present a narrative, but to examine, selectively, certain documents and wrest from them some sense of what written documents have done in history.

The chief governing board of Harvard University, the Corporation, voted on 28 November 1846 to appoint a committee "to report a plan of a School of Science and Literature, to be established as a separate department of the University...." This fact is known, in part, because it was recorded in the minutes of the Corporation.⁷ Minutes are a special kind of record, however, created for future reference as well as to give concrete form and therefore force of authority to a decisive act of a corporate body.

In consequence of this action of the Corporation, the committee undertook its work; we would know little of it beyond the outcome if President Edward Everett had not kept a diary in which he reported that the committee met in his office on 27 January 1847. At that meeting, the president presented a plan for the school, which the committee agreed should be forwarded to the Corporation.⁸ Although it

is possible (and likely) that informal discussion of the plan for the school had taken place previously, its culmination seems to have unfolded rather quickly. Everett later stated that he consulted a plan by Professor Benjamin Peirce,⁹ but otherwise the specifics of the committee recommendations seem to have come from Everett rather than from the committee's deliberations. Final Corporation action on the committee report came on 13 February 1847, when the plan for the school was approved.¹⁰

Though recognizing science as the leading edge, the committee's concept was broader, if ambivalent, stating in point one of its report that, in addition to theoretical and practical science, the "other usual branches of Academic Learning" also should be included. Underscoring this concept, the Corporation voted, in March 1847, to add the college's professors of Latin and Greek literature to the faculty of the school heretofore consisting only of scientists.¹¹

The vote of the Corporation on 13 February 1847 was a milestone in the university's scientific history. What little is known of the events leading to that decision is directly attributable to Everett's diary. A diary, like minutes, is a record. In the case of Everett's diary (as with most), it was created for personal rather than public purposes. It is well to keep this distinction in mind, even though historians might look upon both as essentially documents that register events. What Everett wrote had no social function; it did not give credibility and grounding to action as did the minutes of the Corporation. Although the Corporation's action in voting for the scientific school was temporally separated from its recording in the minutes, the secondary act of writing—of recording—in the minute book gave the action a kind of permanence and reality that it would not otherwise have had.

It does not appear now to be known, beyond the pointed mention in the letter Everett wrote to Abbot Lawrence on 19 August 1847, that the president used a plan drawn up by Benjamin Peirce a year earlier when he prepared his report for the committee. This is an interesting facet of the relationship of documents to events: often events are known only because they are referred to after the fact, sometimes in a deliberate act of recording, but other times divulged for special purposes—as with Everett's later reference to his use of Peirce's plan.

In an earlier study of the nature of written documents and their relations to historical events,¹² I outlined a three-part classification. Some documents, such as a poem or, to a lesser degree, a scientific paper, are essentially events in themselves. The most complex are documents that are intended to effect an action or elicit a response. Sending an invitation or writing a cheque are common examples of this kind of document-event relationship. The third category consists of instances in which an event is known only (or known most fully) *in* the document, as in the instance of Everett's diary entries and his letter to Lawrence. This last category tends to be a favoured one among historians. It can reveal not only external events that are witnessed but also the emotional reaction of the writer. Such documents may also reveal attitudes toward another person that are not otherwise known; such revelations can go a long way toward understanding the motivation for actions: some of this element is revealed in certain passages of Everett's diary and letters. Valuable though such reporting sources are, however, they are no substitute for interactive documents such as those in the second category, those that not only

transmit informational content to the historian but, when consciously analyzed for their functions and other characteristics, also reveal something of the relationships and conventions of the social community under study. It is an important aspect of what I am trying to demonstrate as a kind of ethnography of writing and documentation.

The first meeting of the faculty of the scientific school took place on 27 April 1847. This meeting was recorded in the president's diary, which in this case serves the historic function of surrogate minutes.¹³ The president pursued his concept of the school as broadly based and not confined to the sciences alone: to this he encountered some resistance.¹⁴ Everett persisted with his plan for a "school of literature and science"; in this course a major, though subsequently overshadowed, event was the preparation of a draft "Programme of the Scientific School for the Academic Year 1847-1848."¹⁵ Although undated and unsigned, it was most likely prepared in May, probably by Everett.¹⁶ It was recognized in this document, as elsewhere, that the school was experimental and its success dependent on the number of students it could attract. The projected curricular outline, nonetheless, was broad. Two departments in the school were recognized. The literary department included Greek, Latin, history, and modern languages, while the scientific department encompassed astronomy, mineralogy and geology, mathematics, botany, natural philosophy, anatomy and physiology, and chemistry. Some of the offerings were to consist of opening undergraduate courses to students in the scientific school. While there was discussion at this time about instruction in architecture, mechanics, and civil engineering, they required additional personnel not available when the draft course of study was drawn up.¹⁷ The document indicates that instruction in drawing and bookkeeping was anticipated.

Everett's "Programme" is a document that could have become a seminal history of the school except for the events that followed. Functionally, it is a proposal, insofar as it was a draft and was never officially promulgated; this or some other version was accepted by a committee of the scientific school on 4 June 1847. The "Programme" never reached the point of implementation but remaining largely an anticipatory view of what Everett and others would have liked the new school to be. Everett recognized this when he wrote to Corporation Treasurer Samuel A. Eliot on 23 June 1847, "I ... send you the program of next year's work, as drawn up by me before Mr. Lawrence's donation. I drew it up after consultation with Individuals, but it had never been formerly [sic] submitted to the Scientific faculty, and was therefore only a project."¹⁸ Beyond its functionality as part of the planning process in which the university was engaged, however, the document is a revelation of the broadest thinking, at that time, about the nature of scientific and advanced study. At the same time, it also reflected the limited resources available in the university for such an enterprise, and the uncertainty of its success—the school was described in the draft as "an undertaking which must be regarded at first as an experiment [and] much must be left to be decided by time." As a document representing the process of planning and arrangement, the volatility of the moment was graphically (and artifactually) registered in the section on history. At that point a statement appears on the written page over which the president (assuming Everett to be the author) pinned a slip with text beginning "What I should prefer would be ..." and there he delineated what he would like the history offering to encompass.

This outline of a school of literature and science, prepared in May 1847, was set aside as a consequence of other but related occurrences. Because of this, it was denied its historic, social functionality in shaping the character of the projected school.¹⁹ Furthermore, it has been overlooked by historians studying the founding of the scientific school.

The entire outward complexion of the discussion and plans for the school changed with a letter dated 7 June 1847 from industrialist Abbott Lawrence to Treasurer Samuel A. Eliot, in which Lawrence offered \$50,000 for the project. The timing must have been a surprise, since Everett had made personal plans that made it impossible for him to be present at the 7 June meeting of the Corporation at which Lawrence's gift was accepted.²⁰ A donation was one matter, but Lawrence's 7 June letter was another: there he offered prescription as well as money.

Although it has not been fully reconstructed, the origins of Lawrence's ideas and incentive to support the school of science obviously had multiple roots. Everett and Lawrence were long-term friends,²¹ and sharing an observer's interest in science. On 12 November 1846 Everett recorded in his diary that he had gone to Lawrence's for "new Association" characterized by conversation on sciences and other subjects.²² In the spring, Lawrence accepted membership on the University Board of Overseers' committee on the observatory.²³ In his letter, Lawrence refers to his conversations with Eliot on the subject of a school for "teaching the practical sciences," and in a diary entry for 9 June 1847, Everett stated that efforts were made by Eliot and himself to interest Lawrence in a donation for the school.²⁴ Lawrence's specific approach to scientific education has been attributed to the influence of engineer Charles S. Storrow²⁵ and to William Barton Rogers, geologist and first president of the Massachusetts Institute of Technology.²⁶ It is also relevant to consider the more general influences that came from Lawrence's status as a man of wealth who understood first-hand the needs that industry had for personnel with scientific and engineering skill. In the present context, however, the salient point is that oral and social culture undoubtedly did much to lead Lawrence to write his letter of 7 June 1847; but it was not until pen and paper met that his ideas and their social determinants take on significance.

Lawrence's letter²⁷ reveals a genuine sense of the need for practical education in the sciences to meet what he saw as pressing social needs. It outlines his general ideas of the subject areas in which study should be promoted (engineering, mining and metallurgy, and development and production of machinery). He then goes on to outline his specific intentions for Harvard, in light of his assessment of its strengths and weaknesses in the areas of concern to him. In the end, he offered \$50,000 for the support of professorships in engineering and geology and for the construction of buildings.

Lawrence's letter was addressed to the treasurer; the records in the Harvard University Archives include that original document. The letter also was transcribed, as was common at that time, into the minutes of the Corporation. It also appeared, in whole or in part, in contemporary newspaper accounts and was reprinted, from one of the newspapers, in the *American Journal of Science*.²⁸ Treasurer Eliot wrote to Everett on June 6, the day prior to Lawrence's letter, reporting a communication from Lawrence;²⁹ among the points in Eliot's letter was

an indication that Lawrence expected his letter to be published. An act of private charity became an occasion for a public announcement and perhaps an attempt to formulate public opinion in regard to the nature of scientific education.

The original letter from Lawrence as preserved in the Harvard University Archives has some corrections, deletions, or insertions, suggesting that Lawrence may have written it somewhat hurriedly and that it was not recopied before sending. Since Eliot knew of the letter on June 6, Lawrence must have postdated it. Many of the changes in the letter appear to have been made at a time of re-reading, rather than concurrent with composition. Some changes, presumably in Lawrence's handwriting, tend to soften the text, substituting "should" for "shall" and "suggest" for "state" in the later parts of the letter where it refers specifically to the use of his gift. Some of the changes are in pencil, however, and it is possible that these were made by a university official at the time the letter was prepared for copying into the Corporation minutes. These changes appear in the newspaper publication of the letter that occurred on 9 June.

The Corporation met on the same date as Lawrence's letter and accepted the gift, the acknowledgement (in the minutes) stating that the Corporation "pledge their best efforts to carry faithfully into execution the enlightened suggestions with which the letter accompanying the donation is filled."³⁰ Everett's personal note of acknowledgement to Lawrence included very interesting phrasing in light of the concerns of this paper, when he stated that the gift "will at once call into efficient being our scientific school, which had before only a paper existence."³¹ Both of these statements, from the Corporation and from the president, recognized the force of Lawrence's letter as a social instrument that both transmitted his offer of support and effectively directed the fundamental characteristics of the school. In fact, the coupling of his suggestions for the school with his offer of major funding gave his letter the authority of a prescriptive and formulative text.

While the receipt of the Lawrence letter was itself an event, it also gave rise to a host of other actions and concerns. Obviously the money was the driving force, but the text had influence of its own, however, insofar as it was able to redirect the kind of school that Everett had provisionally constructed in his draft "Programme" in May.

On 12 June 1847, Treasurer Eliot, Corporation member Benjamin R. Curtis, and President Everett were made a committee on the Lawrence donation and the organization of the school.³² After a meeting of this committee on 22 June, President Everett observed in his diary, "A curious fact, that Mr. Lawrence's donation for the moment rather impedes than aids the Operations of the Scientific School."³³ Part of the explanation for this has to be the raised stakes that expenditure of substantial sums entailed, but those funds also meant the cast of characters was changed. It was apparent from his 7 June letter that Lawrence intended to be involved in the project. A subsequent letter from Lawrence to the Corporation, dated 19 July and copied into the Corporation minutes for 31 July, outlined more specific terms of his gift.³⁴ Lawrence in fact used, and withheld, the creation of written documents in a strategy that reflected his idea of his role in regard to the school. Thus, while he sent his letter of 19 July to the Corporation, on the same day he wrote to Treasurer Eliot and explained: "I came to the conclusion on reflection not to place any thing

on record in regard to the appointment of the professors, but I should be glad if you would inform each member of the Corporation that I expect to be consulted before such appointments are made—The same remarks I wish to apply to the buildings.”³⁵

The events following Lawrence’s gift also indicate how history and rhetoric were manipulated to satisfy the demands of philanthropy and reputation. This movement is found on various levels of writing—from the private and confidential, to the interpersonal, to the public. Because of Everett’s centrality to the events and the relative abundance of his surviving documentation, and undoubtedly because of his temperament and individual experiences, the examination of documents for evidence of what might be less than obvious goals can focus here on Everett’s writings. The beginning of the historic assessment emerged in Everett’s diary on 9 June when he reviewed the events of the previous days and tried to find his own place in the outcome.³⁶ Forgetting for the moment nearly a decade of efforts by Benjamin Peirce to establish a school of science and engineering before Everett was even a part of the play,³⁷ the president claimed that he had “taken all the responsibility of organizing the Scientific School” and for the subsequent events. Knowing that Lawrence’s gift would likely mean that “the entire Organization of the School will for the present merge” into that philanthropic and prescriptive act, Everett lamented that his own name and his part were absent from the public announcements of the gift, which included Lawrence’s letter to Eliot, Eliot’s reply, and Professor Walker’s signature on the Corporation’s vote of thanks.³⁸

Later in the summer, Everett went beyond his private diary, taking up the question of proper credit for the school in a somewhat fawning letter to Abbott Lawrence on 19 August 1847.³⁹ It reveals, in conjunction with clues from other sources, how personal relations were a part of the fabric of institution building and the struggle for power and influence that played out on several levels. In the letter, Everett’s jealousy and dislike of Treasurer Eliot and his difficulties with the governance of the university are evident. He also attempted to shape the historical picture in order to assert both his own and Lawrence’s part in the founding of the Scientific School, especially in the way in which he addressed the role of Benjamin Peirce. Similar to Everett’s dislike of Eliot, whose name had been prominently associated with Lawrence’s in the announcement of the gift, Everett’s assessment of Peirce’s role had behind it Lawrence’s apparent dislike of Peirce.⁴⁰ In the 19 August letter, Everett wrote: “You may have been startled by a remark of the Treasurer, that Professor Peirce is the father of the Scientific School. He referred to the fact, that Professor P. has, for several years, been calling the attention of the Corporation to the subject. ... You will not, however, let it cross your mind, that we are, any of us, insensible to the importance of your donation, or disposed to give others any part of the credit due to you. I shall make it a special duty, now and hereafter ... to see, as far as depends on me, that full justice is done to this rare act of liberality.”

Soon after the date of Everett’s 19 August letter to Lawrence, he kept his pledge to honour the donor’s generosity. On that occasion, the power of language was on public display, a natural medium for the famous speaker. But irony as well as oratory took over in his toast and testimony to Lawrence at the Commencement Dinner on 25 August.⁴¹ Among his observations there was the following: “I think I

have never perused a piece of English composition that I thought read much better than Mr. Lawrence's letter of the 7th of June last, announcing the fifty thousand dollars. Is there an equal number of sentences in Burke or Johnson more to the point? What is the tinsel of rhetoric to these few solid, plain-spoken compendious paragraphs?" Granted that Lawrence's letter had a certain degree of force and thoughtful analysis (historian Howard Miller, in reading the letter, describes Lawrence as "a man of unusually acute social vision"⁴²), but Everett's words here and elsewhere in his Commencement remarks used a display of hyperbole that must have had ends in view beyond the ceremonial need to entertain or inspire the assembled body of listeners. Speaking in Lawrence's absence,⁴³ Everett's remarks were followed by his announcement that the school would be named for the donor, the Corporation having the same day capped the year's events by voting to confer the name Lawrence Scientific School.⁴⁴

In assessing his Commencement dinner performance, and his private communications to Lawrence, one must credit Everett for his openness of mind and willingness to embrace Lawrence so expansively even though Lawrence's money and intentions tended toward a contraction in the scope of the scientific school, contrary to the wider fields of advanced study that Everett had promoted. This attitude may be seen as the function of the top administrative officer of the university, to put personal perspective aside for the sake of the institution itself. I am inclined, however, to see in Everett's words an attempt to capture the moment also for himself—to participate in the credit for the birth of the scientific school—and to capture it in the net he knew best, that of language. Moreover, at the several levels of writing and public speaking at which Everett grappled with the problem of credit for the founding of the school, he demonstrated that directness and style both had their rhetorical functions in reaching social ends.

General Comments and Conclusion

This paper has undertaken to explore the nature and functionality of written communication within a particular context. It has attempted to show not only the value of documents as evidence of historic events, but also has suggested something of the connectedness of writing itself to the events under study. But "what happened" has not been the focus here, and therefore a systematic narrative has not been a goal. On these grounds, the examination of the social practice of writing has been selective. I hope, nonetheless, that enough has been shown to make it apparent that no act of writing is without intent and that, in the right circumstance, documents can have consequences. Sometimes it is the force of an institution, as when the Harvard Corporation voted, and recorded that vote, to establish a scientific school. Other times, the act of writing gives vision and specificity to an emerging idea, as in Everett's draft program for a scientific school. That document is a good example of the limits of writing, however, in the absence of other sources of power and influence. But persuasion also has its place. For example, when the Board of Overseers, the second governing board of the university, was asked to consider and concur in the plan for a scientific school in February 1847, the minutes recorded the event as follows: "The President then presented for concurrence the following Rules & Statutes for a Scientific School of the University at Cambridge, which he

explained and supported by such satisfactory argument, that the Instrument was unanimously and *viva voce* adopted without the usual reference to a Committee."⁴⁵

Abbott Lawrence wrote a prescription for a scientific school that met his own predilections for practical education, contrary to the larger academic view of Everett and the university authorities. Lawrence's words carried a certain rhetorical force but their efficacy came because he also was prepared to pay for his plan when the university had no funds of its own. Caught in a sea-change, Everett took up the instruments of writing and oratory, aiming to achieve for Lawrence the full credit he was due. In carrying out that visible intent, however, Everett also was laying claim to credit he thought was denied to himself, as well, in having brought the vision of the scientific school to reality.⁴⁶

These latter interpretations hang to some degree on a reading of motivation, the words and the presumed intent not necessarily coinciding. But this is the nature of historical interpretation, to learn through reading widely in the times, and to attempt to decode the words for their special contextual meaning, and thus to uncover the functionality in social writing. This can be done optimally only if the reader-historian will consciously consider the wider role of writing and other modes of communication as part of the routine of historical research and interpretation, to make this concern a parallel one to analysis of the particular messages contained within the documents under study.

Notes

- 1 For a general review of the period see Robert V. Bruce, *The Launching of Modern American Science 1846-1876* (New York, 1987).
- 2 On 19 August 1846, the Yale Corporation established two professorships, in agricultural chemistry and vegetable and animal physiology, and in practical chemistry, to teach individuals not members of the Yale undergraduate classes. A year later (19 August 1847), the Corporation established a Department of Philosophy and the Arts: the School of Applied Chemistry constituted a very large part of the new department. Russell H. Chittenden, *History of the Sheffield Scientific School of Yale University 1846-1922* (New Haven and London, 1928), pp. 37-38, 40-42.
- 3 The story of the school's founding has been told in other places and from several (but more conventional) historical perspectives. See especially: Richard J. Storr, *The Beginnings of Graduate Education in America* (Chicago, 1953), pp. 46-53; Margaret W. Rossiter, "Louis Agassiz and the Lawrence Scientific School," (Undergraduate Thesis, Harvard University, 1966), (copy in Radcliffe College Archives); Howard S. Miller, *Dollars for Research: Science and its Patrons in Nineteenth-Century America* (Seattle and London, 1970), pp. 74-82; Margaret W. Rossiter, *The Emergence of Agricultural Science: Justus Liebig and the Americans, 1840-1880* (New Haven and London, 1975), pp. 72-77; Bruce Winchester Stone, "The Role of the Learned Societies in the Growth of Scientific Boston, 1780-1848," (Doctoral Dissertation, Boston University, 1974), pp. 463-79; Arthur Zaidenberg, "From Reforms to Professionalization: The Transition of Attitudes Toward Scientific Education in Harvard," (Doctoral Dissertation, University of California, Los Angeles, 1974), pp. 39-40, 64-69, 206; Akira Tachikawa, "The Two Sciences and Religion in Ante-bellum New England: The Founding of the Museum of Comparative Zoology and the Massachusetts Institute of Technology," (Doctoral Dissertation, University of Wisconsin, Madison, 1978), pp. 112-46, 160-63; Clark A. Elliott and Margaret W. Rossiter, eds, *Science at Harvard University: Historical Perspectives* (Bethlehem, London and Toronto, 1992), especially Mary Ann James, "Engineering an Environment for Change: Bigelow, Peirce, and Early Nineteenth-Century Practical Education at Harvard," pp. 55-75, and Bruce Sinclair, "Harvard, MIT, and the Ideal Technical Education," pp. 76-95.
- 4 This refers to the university's undergraduate liberal arts school and does not include the medical school.

- 5 Biographical accounts of all the foregoing individuals are in Clark A. Elliott, *Biographical Dictionary of American Science: The Seventeenth Through the Nineteenth Centuries* (Westport, Conn. and London, 1979) and in other standard sources.
- 6 "The Character and Functions of Written Documents: Science at Harvard University, 1846-1847: A Case Study of the Character and Functions of Written Documents," *American Archivist* 57, (Summer 1994), pp. 448-60.
- 7 Corporation Records, vol. 8, p. 330 (Harvard University Archives).
- 8 Edward Everett Diary, 27 January 1847 (Massachusetts Historical Society).
- 9 Edward Everett to Abbott Lawrence, 19 August 1847, Edward Everett College Letters, vol. 1, p. 312 (Harvard University Archives). The plan consulted most likely was Peirce's "Plan of a School of Practical and Theoretical Science," 27 February 1846, College Papers, 2nd series, vol. 13, pp. 180-85 (Harvard University Archives).
- 10 Corporation Records, vol. 8, pp. 338-41 (Harvard University Archives).
- 11 Corporation Records, vol. 8, p. 343 (27 February 1847) and p. 349 (13 March 1847) (Harvard University Archives).
- 12 Clark A. Elliott, "Communication and Events in History: Toward a Theory for Documenting the Past," *American Archivist* 48, no. 4 (Fall 1985), pp. 357-68 and 49, no. 1 (Winter 1986), p. 95 (correction).
- 13 Edward Everett Diary, 27 April 1847 (Massachusetts Historical Society).
- 14 See Jared Sparks to Edward Everett, 15 May 1847, College Papers, 2nd series, vol. 14, p. 339 (Harvard University Archives), where the professor of ancient and modern history informed the president that, in his view, there was unlikely to be any demand for advanced study outside the sciences. Doubts were expressed by Professor of Greek Cornelius C. Felton about his ability to participate in the school; see C. C. Felton to [Edward Everett?], 21 May 1847, College Papers, 2nd series, vol. 14, p. 342 (Harvard University Archives).
- 15 Records of the Lawrence Scientific School (Harvard University Archives).
- 16 The document is undated, but Everett wrote in his diary on 20 May 1847: "Engaged in drawing out the Programme of the Scientific School.—most of the morning." On 4 June 1847 he wrote: "In the Evg Professors Peirce & Horsford met me as a committee of the Faculty of the Scientific School. We adopted the draft of a Programme which I reported." Edward Everett Diary (Massachusetts Historical Society). The document is identified as "2nd draft" on an outside page.
- 17 In addition to the draft "Programme," see Edward Everett Diary, 29 May 1847 (Massachusetts Historical Society).
- 18 Edward Everett to Samuel A. Eliot, 23 June 1847, Edward Everett College Letters, vol. 1, p. 264 (Harvard University Archives). Emphasis is in the original document. Although very probable it is not entirely certain that Everett was referring here to the draft "Programme" under discussion.
- 19 It is conceivable that later drafts of the plan were written out but they undoubtedly would have followed the general scheme that is given here.
- 20 Samuel A. Eliot to Edward Everett, 6 June 1847, College Papers, 2nd series, vol. 15, p. 6 (Harvard University Archives); Edward Everett to Samuel A. Eliot, 7 June 1847, Edward Everett College Letters, vol 1, p. 247 (Harvard University Archives).
- 21 Paul Revere Frothingham, *Edward Everett: Orator and Statesman* (Boston and New York, 195), p. 290.
- 22 Edward Everett Diary, 12 November 1846 (Massachusetts Historical Society).
- 23 Abbott Lawrence to Edward Everett, 1 May 1847, Corporation Papers, 2nd series (Harvard University Archives). Lawrence was an established supporter of Harvard astronomy and of scientific interests more generally. See, for example, Howard Miller, *Dollars for Research: Science and Its Patrons in Nineteenth-Century America* (Seattle and London, 1970), pp. 36, 75-76.
- 24 Edward Everett Diary, 9 June 1847 (Massachusetts Historical Society).
- 25 Samuel Eliot Morison, *Three Centuries of Harvard 1636-1936* (Cambridge, 1936), p. 279.
- 26 Akira Tachikawa, "The Two Sciences and Religion in Antebellum New England: The Founding of the Museum of Comparative Zoology and the Massachusetts Institute of Technology," Doctoral dissertation, (University of Wisconsin, Madison), 1978, p. 130.
- 27 Abbott Lawrence to Samuel A. Eliot, 7 June 1847, College Papers, 2nd series, vol. 15, pp. 7-12 (Harvard University Archives).
- 28 See clippings on the Lawrence Scientific School (Harvard University Archives); *American Journal of Science* 54 (September 1847), pp. 294-97.
- 29 Samuel A. Eliot to Edward Everett, 6 June 1847, College Papers, 2nd series, vol. 15, p. 6 (Harvard University Archives).

- 30 Corporation Records, vol. 8, p. 366 (Harvard University Archives).
- 31 Edward Everett to Abbott Lawrence, 8 June 1847, Edward Everett College Letters, vol. 1, p. 248 (Harvard University Archives).
- 32 Corporation Records, vol. 8, p. 367 (Harvard University Archives).
- 33 Edward Everett Diary, 22 June 1847 (Massachusetts Historical Society).
- 34 Corporation Records, vol. 8, pp. 374-76 (Harvard University Archives).
- 35 Abbott Lawrence to Samuel A. Eliot, 19 July 1847, Letters to the Treasurer, vol. 10, p. 105 (Harvard University Archives). It is likely that this particular letter was used to transmit the letter of the same date to the Corporation, in which Lawrence fine-tuned his ideas relating to his gift for the school. In regard to the buildings, he explained to Eliot that he wanted to reserve the power to choose the builder.
- 36 Edward Everett Diary, 9 June 1847 (Massachusetts Historical Society).
- 37 Edward Everett became president of the university early in 1846.
- 38 See, for example, newsclippings on the Lawrence Scientific School (Harvard University Archives), 9 June 1847, from the Boston *Daily Advertiser* and *Boston Courier*.
- 39 Edward Everett to Abbott Lawrence, 19 August 1847, Edward Everett College Letters, vol. 1, pp. 311-13 (Harvard University Archives).
- 40 After briefly reviewing the events at a meeting at Lawrence's (with Samuel A. Eliot and Benjamin Curtis), Everett wrote: "Mr. L. expresses in an emphatic manner the most unfavourable opinion of poor Professor P_ & the necessity of getting rid of him. Not so easy a process." Edward Everett Diary, 16 August 1847 (Massachusetts Historical Society).
- 41 The speech appeared in an account of Commencement in the *Semi-Weekly Courier* on 9 September 1847 (Newsclippings on Commencement, 1847, Harvard University Archives). Evidence that the text of Everett's Commencement dinner speech was not simply a news reporter's reconstruction of Everett's remarks is shown in an entry in Everett's diary for Tuesday 31 August 1847, where he records: "I write off my remarks at table Wednesday last for the Cambridge paper." Edward Everett Diary (Massachusetts Historical Society).
- 42 Howard Miller, *Dollars for Research: Science and Its Patrons in Nineteenth-Century America* (Seattle and London, 1970), p. 78.
- 43 Lawrence was not able to attend the Commencement festivities. See Abbott Lawrence to Edward Everett, 23 August 1847, Corporation Papers, 2nd. series (Harvard University Archives).
- 44 Corporation Records, vol. 8, p. 386 (25 August 1847) (Harvard University Archives).
- 45 Overseers Records, vol. 8, p. 489 (18 February 1847) (Harvard University Archives).
- 46 It is ironic that, in achieving the means to establish the school through the contribution of Abbott Lawrence, the institution took a direction that differed from Everett's original plan. By the early part of 1848, the idea of non-science offerings was gone. In explaining this move away from the original, and broader plan that envisioned a school of "literature" as well as science, President Everett stated that "They [the Corporation] have been much influenced in coming to this conclusion by understanding this to be the judgement and wish of Mr. Lawrence"; Edward Everett to Dr. Beck and Professor Felton, 31 January 1848, Edward Everett College Letters, vol. 2, p. 33 (Harvard University Archives). On a similar epistolary occasion shortly thereafter, Everett made it clear that this diminution in the scope of the school had been done against his wishes; Edward Everett to F. J. Child, 11 February 1848, Edward Everett College Letters, vol. 2, p. 45 (Harvard University Archives). Richard J. Storr, *The Beginnings of Graduate Education in America* (Chicago, 1953), pp. 51 and 168 (note 35), cites a letter (from Professor and Corporation member James Walker to President Everett), which he dates as 20 June 1847, as evidence that the Corporation had been opposed all along to including anything but science in the new school. In fact, that letter is properly dated 20 January 1848, and is part of the process of redirecting the school that took place in the wake of Lawrence's donation. See College Papers, 2nd series, vol. 14, p. 207 (Harvard University Archives).