

August 13, 1846

TO [BENJAMIN SILLIMAN, JR.]¹
*Draft, Henry Papers, Smithsonian Archives*²

Princeton Aug 13th 1846

My dear Sir

Your letter of the 10th inst³ was received a day or two ago but owing to the press of business at the beginning of our college year I have been unable to answer it before this afternoon. I send you with this letter a recommendation which I trust will meet your wishes and I need scarcely add that I most sincerely hope that you may succeed in obtaining the situation whatever it may be for which I presume you are about to be a candidate.⁴

I have been several times of late years called on to recommend candidates for professorships in the line of Physical Science⁵ and in one case to nominate a Professor⁶ and I have adopted the rule of giving the preference to a person who has made some advance in the way of original research provided his qualifications in other respects were adapted to the situation.⁷ I do not agree with the opinion expressed by our Friend Professor Olmsted in his

¹ Co-editor (with his father and with James Dana) of *Silliman's Journal*, since 1842 Benjamin Silliman, Jr., had also provided advanced instruction in analytical chemistry to students in his private laboratory at Yale College. *Henry Papers*, 4:100n; Louis I. Kuslan, "The Founding of the Yale School of Applied Chemistry," *Journal of the History of Medicine and Allied Sciences*, 1969, 24:432-433.

We have identified him as the recipient based upon Henry's reference to "our Friend Professor [Denison] Olmsted," the Professor of Natural Philosophy and Astronomy at Yale College (see *Henry Papers*, 1:274), and upon the younger Silliman's letter to Henry of September 17, 1846 (printed below), thanking him for his letter "and the accompanying commendatory documents."

² We have not found Henry's outgoing letter, evidently written the day after he prepared this draft. Although Silliman's reply indicated that Henry's letter had been read before the Yale Corporation, it was not entered into the Corporation's minutes.

³ Not found.

⁴ The younger Silliman had apparently requested a blanket recommendation from Henry, since the position in which he was interested—a professorship in applied chemistry at Yale—had not been established or even proposed at the time of his letter.

⁵ See, for example, Henry's "Recommendation for John F. Frazer," *Henry Papers*, 5:478, and his letter to James Henry Coffin, July 27, 1844, printed above.

⁶ Henry presumably meant his nomination of James Hall for the position of Professor of Natural Philosophy at the New York State Normal School; see his letter to Francis Dwight, March 3, 1845, printed above.

⁷ Henry's belief that a candidate's abilities, as demonstrated by his prior research contributions, rather than his connections, associations, or influence, should form the basis upon which his qualifications for a science professorship should be judged, was becoming the standard by which most leading scientists measured their peers by the mid-nineteenth century. Those who believed themselves qualified to render such judgments formed a small and tightly knit circle. As Henry asserted in his 1850 presidential address to the American Association for the Advancement of Science,

the man of Science . . . finds few men who can sympathize with his pursuits or who do not look with indifference on the objects of his research. His world consists of a few individuals, in some cases less than ten or twelve in a whole country, who can fully appreciate him and from whom he is primarily to receive that reputation which the

address to a meeting of teachers that the man who would make his name known in Foreign Countries must be content to be a man of one idea and to become an inferior teacher.⁸

public generally will afterwards concede to him.

"Address to the American Association for the Advancement of Science," printed in Arthur P. Molella et al., eds., *A Scientist in American Life: Essays and Lectures of Joseph Henry* (Washington, 1980), p. 39. Members of that small circle of leading scientists tended to define themselves in relation to one another and against those whose seeming lack of talent kept them, according to the criteria being developed, outside of the group. In 1860 Louis Agassiz drew a distinction between two types of science professors: the majority, "whose chief claim to success lies in their familiarity with what others have done to advance science," and a smaller minority "which by original independent research contribute to the advancement of science" (quoted in Howard S. Miller, *Dollars for Research: Science and Its Patrons in Nineteenth-Century America* [Seattle, 1970], p. 163).

The growing perception among leading scientists of the need for certain criteria with which to define themselves, preserve status and hegemony, and regulate admission to their community, formed an important theme in the process of specialization and professionalization within the scientific community during the antebellum period. See George H. Daniels, "The Process of Professionalization in American Science: The Emergent Period, 1820-1860," *Isis*, 1967, 58:151-166, especially pp. 156-160; Sally Gregory Kohlstedt, *The Formation of the American Scientific Community: The American Association for the Advancement of Science, 1848-60* (Urbana, Illinois, 1976); Stanley M. Guralnick, "The American Scientist in Higher Education, 1820-1910," in *The Sciences in the American Context: New Perspectives*, ed. Nathan Reingold (Washington, 1979), pp. 115-116; Reingold, "Definitions and Speculations: The Professionalization of Science in America in the Nineteenth Century," in *The Pursuit of Knowledge in the Early American Republic*, ed. Alexandra Oleson and Sanborn C. Brown (Baltimore, 1976), especially pp. 49-51; Reingold, "Joseph Henry on the Scientific Life: An AAAS Presidential Address of 1850," in his *Science, American Style* (New Brunswick, 1991), pp. 156-168.

⁸ Henry was referring to Denison Olmsted's *On the Beau Ideal of the Perfect Teacher: A Lecture Delivered before the American Institute of Instruction, at Their Annual Meeting at Hartford, August, 1845* (Boston, 1845), a copy of which is in the Henry Library.

Olmsted's address reflected his lifelong interest in the education of teachers. He discussed the choices facing the teacher who had completed several years of "exclusive study of the subjects of his profession" (p. 7). Olmsted asserted that the teacher's decision about what course to follow should be based upon the type of "professional enthusiasm" he possessed for continued studies. If his enthusiasm were such that it motivated him to engage in original research or to attain an international reputation for his work, Olmsted wrote, then

it may be best for him to be the "man of one idea," and to know nothing else save the particular subject of his profession. Such a course will be the most likely of any to add to the sum of truth, and to gain him a deathless name.

Ibid. On the other hand, the individual whose professional enthusiasm encouraged him to become an *accomplished* teacher, should not attempt to gain a reputation for original research, but should focus his efforts upon broadening his knowledge through studies of kindred subjects and general scholarship.

Henry, in contrast, saw no contradiction between distinction in research and excellence in teaching; indeed, he believed that an original researcher's enthusiasm for his subject would enable him to inspire his students and make him a superior teacher. The most qualified professor of science, Henry argued, effectively communicated material to his students because he had a firm grasp over his area of specialization. Yet the science professor's training in the acquisition of general principles would enable him to master not only his own special field but also any other subjects to which he might turn his attention. Henry's view thus reflected his support for Scottish Common Sense Philosophy, which emphasized breadth of vision over narrow specialization; Scottish philosophy held that one should be a "man o' parts" rather than a "man of one idea." (Richard Olson, *Scottish*

Philosophy and British Physics, 1750-1880 [Princeton, 1975], pp. 16-17.)

Olmsted's views bothered Henry for many years, and he attacked them on several occasions. Writing to Alexander Dallas Bache in 1852, for example, he termed Olmsted's pamphlet "a plea for stupidity or an apology for dunces," declaring that "an opinion of this kind if adopted would prove in the highest degree prejudicial to the advance of true knowledge in our country" (Henry to Bache, June 25, 1852, Bache Papers, Smithsonian Archives; see also his Closing Remarks for Natural Philosophy Course, April 25, 1846, printed above).

To be sure, both Olmsted and Henry were espousing an ideal type. Not surprisingly, the record of each man's life reveals that each succeeded as a teacher by consciously striving to emulate the ideal he upheld. Olmsted's studies of meteors, aurorae, zodiacal light, hailstones, and other astronomical and meteorological phenomena demonstrated his abilities as a scientist and gained him recognition among his peers. Yet Olmsted saw himself as a teacher *first*. Under his guidance the observatory and equipment at Yale College were used more for instructing students in practical astronomy, than for making new discoveries or for conducting an ongoing research program. Olmsted's attention to his students and his dedication to teaching were praised by his contemporaries. In a memorial address, Theodore D. Woolsey observed that Olmsted's "colleagues and friends have regarded him as born a teacher," and noted that "Olmsted regarded teaching in its broadest sense—the diffusion and inculcation of science—as the work to which he was called, and to which all other works must be subordinate . . ." (*Discourse, Commemorative of the Life and Services of Denison Olmsted . . .* [New Haven, 1859], pp. 15, 17).

Henry's work in electricity and magnetism clearly marked him as one of the premier scientists of his day. By all lights, he was also an excellent teacher. As Charles Weiner observed in "Joseph Henry's Lectures," and as we have noted in a previous volume (*Henry Papers*, 3: 150n), Henry's command of the subject, his classroom demonstrations of current discoveries in physics, and his own enthusiasm as a professor of natural philosophy won him the acclaim and regard of his students and colleagues at the College of New Jersey. Asa

Gray did not exaggerate when he asserted that as a professor at Princeton, Henry "developed . . . a genius for education" ("Biographical Memorial, by Professor Asa Gray," in *A Memorial of Joseph Henry* [Washington, 1880], p. 62). Nor was Henry in any sense of the word a "man of one idea." Though he may not have cultivated a taste for general learning as assiduously as Olmsted, whose interests ranged from poetry and oratory to sculpture, gardening, and landscape design, Henry read avidly in, and was well-versed in, the classics, works of literature, plays, and philosophy.

The record of Henry's and Olmsted's lives lends weight to the truism—which Henry admitted—that good professors of science were born, not made. And, as the differing approaches of both men suggest, excellence in teaching had many facets. Neither Olmsted nor Henry, however, alluded to what might serve as the most lasting mark of a teacher's accomplishments: his ability to serve as a mentor, to persuade students to follow in his footsteps. Judging by this measure, and allowing for the differences in their tenures (thirty-five years at Yale for Olmsted, fifteen years at Princeton for Henry), Olmsted was the better mentor. At least a dozen of his students went on to achieve scientific reputations for their work in astronomy, physics, or meteorology. In contrast, of the hundreds of students who took Henry's course in natural philosophy at Princeton, only two—Richard Sears McCulloh and Henry Wurtz—won recognition for their scientific research. (See the lists of graduates by colleges in *Elliott*, pp. 309-310, and Marc Rothenberg, "The Educational and Intellectual Background of American Astronomers" [Ph.D. dissertation, Bryn Mawr College, 1974], p. 30.)

On Olmsted as a teacher, see Rothenberg, pp. 30-45, and Gary Lee Schoepflin, "Denison Olmsted (1791-1859), Scientist, Teacher, Christian: A Biographical Study of the Connection of Science with Religion in Antebellum America" (Ph.D. dissertation, Oregon State University, 1977). Schoepflin discusses how Olmsted's Yale years shaped his thinking about the "beau ideal" of the perfect teacher (pp. 259-268). While Weiner's study remains the best source on Henry as an educator, see also Barbara Myers Swartz, "Joseph Henry—America's Premier Physics Teacher," *The Physics Teacher*, 1978, 16:348-357.

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I think it unfortunate that the Professor should have given expression to such a sentiment which is in my opinion not <true> only erroneous but calculated to do <much> injury to the cause of american science. Unfortunately the opinion is already to prevalent that a profound knowledge of any branch of science is not necessary to a good teacher of that branch but rather detrimental. It is evident that what ever may be a persons capacity for communicating knowledge he cannot teach more than he knows. The man of profound acquirement it is true may not possess a happy faculty of imparting knowledge and he may err in attempting to <do> give too much but it will be found on the other hand that the sucesful popular teacher in general is little more than a charletan who does not attempt to give his pupuls precise ideas but substitutes crude and partial hypotheses for the true generalizations of science.⁹

I deny the truth of the assertion that a man who whould make his name known in foreign countries by his researches must be content to be a person of one idea. It is true he must be a man of *one purpose* and resolve to devote himself assiduously to the discovery of truth and for this purpose he will find it necessary to build his reputation on a few branches of human knowledge and to make one of these at a time the paramount object of his thoughts. But although he may not be known by his publications in more than one branch of science yet as a general rule it will be found that he who possesses force of mind sufficient to enlarge the bounds of science and to frame the antecedent hyp[ot]hosies¹⁰ which are always the precursors of important discoveries neither does nor can confine his whole attention to this single branch. He will find it necessary to a more comprehensive view to enlarge his horizon. He who would successfully cultivate physical science must make some excursions into the fields [of] psychological and moral

⁹ In an address before the American Association for the Advancement of Education in 1854, Henry similarly asserted that "the tendency to court popular favor" led "the profound teacher . . . to comply with popular prejudices and conform to public opinion, however hastily formed or capricious such an opinion may be." The result, he said, was charlatanism and dishonest attempts to gain fame. "The Philosophy of Education," reprinted in *A Scientist in American Life*, pp. 71-87 (quote at p. 76).

Henry continued to develop his thoughts on excellence in the teaching of science, and in later life delivered several public statements of his views; see, for example, "On the Importance of the Cultivation of Science: Letter

to the Committee of Arrangements of the Farewell Banquet to Professor Tyndall" (1873), in *ibid.*, pp. 99-109.

¹⁰ Henry presumably meant here "antecedent probabilities," as defined by Baden Powell in *The Connexion of Natural and Divine Truth; or, The Study of the Inductive Philosophy Considered As Subservient to Theology* (London, 1838). See *Henry Papers*, 5: 239n-240n; "Record of Experiments," December 26, 1845, printed above, and Paul Theerman, "Joseph Henry and Scientific Method: Scottish Philosophy in American Context" (unpublished paper delivered at International Conference on the Philosophy of Thomas Reid, University of Aberdeen, 1985), pp. 4-5.

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truth. In corroboration I do not think there is to be found in the whole history of Physical science a single name belonging to an individual who has made important additions to this branch of knowledge who was in the offensive sense a man of one idea. You must recollect however that by science I understand the knowledge of the laws of phenomena and not a mere collection of facts or a classification of objects which is properly denominated by Bacon Natural History.

In all cases of the selection of a professor I have no hesitation in saying that the choice ought to be made of the man who has shown most talent in original research provided other qualifications are not wanting. Such a man will possess the requisite amount of enthusiasm <and> essential <requisite> in a good teacher—he will have <schooled himself> acquired a love of truth—will be above the charlatanism of attempting to elevate himself by unjust means and having felt the stimulating influence of the approbation of those well qualified to judge of his labours he will¹¹

¹¹ The manuscript breaks off at this point. However, as is evident from Silliman's reply, Henry's outgoing letter went on to raise ques-

tions about the editorial and publication policies of *Silliman's Journal*.

TO [?THOMAS SPARROW, JR.]¹

Mary Henry Copy, Memoir, Henry Papers, Smithsonian Archives

Princeton Aug. 15th. 1846.

My dear Sir: The receipt of your letter,² introducing Mr. Anderson,³ gave me much pleasure, particularly since I had no reason to expect another communication from you, since I had neglected to answer the one you sent me a year ago. I would have answered that letter immediately, had it not contained some problem in reference to science, which I could not solve off-hand, and I was too much occupied to make the requisite investigations.

I am much pleased to learn from your letter that you have become settled in life, and have given the pledge of a good citizen by becoming a married man. I am a strenuous advocate for matrimony, believing it the state designed by Providence for the development of all the finer qualities of our

¹ On the basis of the text of the letter, we believe the intended recipient was Thomas Sparrow, Jr., Princeton Class of 1842, as he was a North Carolina lawyer, had recently married, and had presented Henry with a scientific query on the *ignis fatuus* in his letter

of February 13, 1845, printed above.

² Not found.

³ Otherwise unknown, but perhaps a Mary Henry mistranscription for "Henderson," in which case Dr. Pleasant Henderson, who was mentioned in Sparrow's letter, is possible.