## 218. TO ALEXANDER DALLAS BACHE

Washington June 25th[–July 9] 1852

My Dear B.

I would be wanting in kind and grateful remembrance to you did I not occasionally devote a few moments in jotting down for your eye the items of occurrances which take place during your absence. Though I have nothing of importance to communicate what I ↑howev↓ send may serve to awaken more important associations in your own mind.

Prof. Bond[1] remained with us until Friday after you started and appeared much pleased with this his first visit to Washington. He conducted himself very unassumingly and spoke very kindly of all his coadjutors at Cambridge not excepting Gould. I think him an improvable man who has a just and not undue estimate of his own powers. He said I have no genius and am obliged to labour very hard for everything I obtain; many persons could accomplish the same in half the time but I love work and can stick to it for a long time.

Capt. Davis came to us after you left and is still one of our family. He has made himself, as usual, very agreeable to all our household and particularly to me by giving every evening critical readings of Shakespeare with whom he is very intimately acquainted— He has gone today to visit Maury with the intention of spending the night at the observatory— He thinks the Lieut is kindly but not magnanimously disposed towards him and finds considerable difference in the kind of polarity at the two extremities of the city.

I have been endeavouring to settle the difficulty betwen Wilkes and Prof. Gray. The latter made a false step in not sending his accounts to the former who is the authorized agent of the Library Committee— Informed the Prof. of this who immediately made ~~a apology which appears to have~~ the proper acknowledgement which though the Capt declared it was a matter of no consequence will I think go far towards an adjustment of the difficulty— The Capt proposes to go on to Cambridge to have a personal interview with Dr. Gray.

Mr Pearce is getting very tired of the affairs of the exploring expidition and is almost inclined to think all engaged in the work a set of sharpers, or that the Capt is the most unfortunate agent that could be employed. Cassin[2] of Phild who undertook to describe all the birds, or in other words to go over Peale's book for 3000 dolls now asks that sum per year.[3]

The whole sum expended on the publications and the collections up

to this time is nearly 300000 dolls. after all how much is indirectly done for science by our Government! The whole cost of printing Dr Owen's report on Geology[4] as he informed me himself a few days ago is 42.000 dolls. 20,000 dolls were appropriated for the 2nd vol. of Schoolcrafts omnium gatherum.

Owen's book is beautifully executed after the style of the Smithsonian volumes and illustrated with wood cuts. There is considerable talk of establishing a national printing office[5]— Something ought to be done with reference to this matter. Humbolt complained last year of the abominable manner in which our most valuable documents are given to the world in a style of typography which would have been a disgrace to the art 200 years ago.[6] Congress will probably cut down the census returns and I think with good reason. In the sample which has been printed for illustration a history of each county of the state is given; also the geology, mineralogy &c.[7] The great idea is in all cases to make school books for the masses of what ought to be definite reports. To carry out the plan you ought to give each year a treatise on mensuration and land surveying. Stuff— Stuff—

After the departure of Capt Davis I should say before his departure we had a visit from a young Irishman Mr Todhunter!!(what a name you will say) a cousin of Prof Harvey.[8] He also brought a letter of introduction to you and remembered seeing you in Dublin in 1836 or 37.[9] He was a very pleasant gentleman and out talked even the Capt. who as you know is not deficient in that accomplishment. He however spoke with the hesitation of an Englishman which by the by is a remarkable national peculiarity and might almost be put down as a distinctive ethnological mark. Does it arise from imitation affected or sympathetic or from what cause? The heat of Washington whas however too great for our son of the emerald isle and he left rather suddenly to cool himself with a bath in Lake Superior. He was not much of an Irishman in his feelings and declared that not a single pure blooded Irishman had ever risen to distinction all the great names of that country are importations. Is this so?

Mr Blodget is going on with the mapping of storms and has finished several series. I sent a single map to Lefroy asking him for information to fill up the country beyond the Canada line. I have also concluded to send a series of maps to Sabine to be presented at the meeting of the British association[10] for the purpose inducing the British government to cooperate with us in completing the data for the continent. Though the instruments are inferior in quality it is surprising how well they

agree in furnishing reliable variations from mean conditions that is in giving elevations and depressions in case of a storm above their onwn monthly mean.

The process of preparation for mapping is very laborious but Mr Blodget has devoted himself with untiring labour to the work.

July 3rd I have been so much engaged in a variety of matters since I last wrote that I have not been able to resume my pen until this evening. The meeting of the agricultural society[11] which you mention in your very acceptable and kind letter of the 28th ult[12] gave me considerable employment also the shipping of our annual packages for Europe and settling our half yearly accounts have kept me quite busily engaged.

You have with your usual sagacity given the true solution of the agricultural movement of the members of Congress. The subject of converting the Smithsonian Institution into an agricultural society was discussed in the committee as I have since been informed and a proposition was made to call me in to learn my opinion of the project; to this Douglas objected stating that he knew that I would object to anything[A] but the publication of sea weeds and such trash—

I happened to come in just as Douglas commenced[13] and immediately put myself in a position to catch the eye of the President[14] and to be heard and seen from every part of the room. His remarks were well calculated to excite me and to do away with my usual reluctance to speak in public. The Reporter gave but a small part of my remarks and did not state the fact that I placed on the law of Congress any impediments which might exist in the way of carrying out in the most liberal manner the spirit of the Will.[15]

I stated that the money was not given to the United States exclusively for its own benefit but for the good of men—given in trust for a special ↑object↓ and that it would be an everlasting disgrace to our country if the trustees of this fund should divert it from its proper object and devote it to their own [~~special~~] use &c. I was very much excited and I fear was rather severe in my remarks. The whole however passed off very well and Judge D. found he had made a mistake. Gen Rusk[16] of Texas interfered and smoothed the whole matter over in a very happy manner declaring however his opposition to the proposition of disturbing the Smithsonian.[17]

At the meeting next morning Judge D made some conciliatory remarks and afterwards made an advance towards me which I immediately met. We then agreed each to make some remarks at the close of the meeting and accordingly after thanking the convention for a vote they had passed relative to the institution,[18] I stated that I feared in my

zeal for the defense of pure science I had expressed myself too warmly and begged[B] to apologize for any intemperance of manner I had been guilty of. I also stated that Judge D. and myself had come to an understanding which I trusted would result in harmony of views and actions. The Judge followed with some pleasant remarks and then the convention adjourned with applause.[19] I stated if all had not been done which might have been done the fault was in the Act of Congress organizing the Institution.

Mr Pearce intends to make a speech in reference to the Institution and for this purpose I have been with him several nights. I think he will do himself much credit and the Institution much good.[20] General Rusk has also taken a warm interest in our affairs—also Mr Clark of Rhode Island.[21]

I have lately been some what anoyed with the attempts of old Holbrook the sapient Democrat of small science who figures in the columns of the Intelligencer[22] under the special patronage of Mr. Seaton. He has resolved to coerce the Smithsonian into the appropriation of three or four thousand dolls for the diffusion of his trash throuought the United States.[23] Mr Pearce informed me that Mr Seaton was warmly interested in the plan—strange that after giving the casting vote for the Norman Castle (pardon the term) he should now become so much interested in the diffusion of knowledge among the masses. I find however on enquiry that Holbrook can do nothing and that he is beginning to be voted bore by some of the members and a monomaniac by others. He has obliged me to do something more than usual in the visiting line of late.

We have just sent off several hundred packages containing the third and fourth volumes of the contributions to our foreign correspondence. Baird has started on a tour to Lake Superior. He has had several pretty severe attacks this spring of an affection of the heart and looks very badly. I am now enjoying very good health. The iodine I was taking when you left at first affected me unpleasantly but has since I think produced a contrary result—

I sent you a note[24] this afternoon relative to an appointment as commissioners to examine Prof. Grant's light.[25] I shall call on the secretary pro tem[26] as soon as he returns from Phil[d] which will be as I am informed on monday evening. I do not see why he put Dr. P[C] on the list with us. I fear he has a propinquity to humbugs, though I am inclined to think him a very honest man. I fear after all the humbug Paine will get a patent and then we shall be called upon to examine his light which I doubt not will be turned to darkness. Paine's agent brought on an

apparatus and proved conclusively to the learned pundits of the Patent office that the addition of a large quantity of water to the mixture of benzoil and alcohol improved the duration of the light though it tended to render it more smoky. Gale was very anxious to grant the patent though I directed a Professor Eaton of Rochester[27] who has been in the laboratory of the Institution a few days making some experiments of his own, to tell the examiners of the result of his experiments made at my request. He finds that mixing a large quantity of water with the solution of Benzoil and alcohol causes a separation of the latter from the former which unites with the water and the resulting flame is precisely the same as that obtained by passing a stream of air through pure benzole but this throws the invention back on the very first patent which was taken out for producing light by this substance.

July 5th

I have just received a letter from Capt D.[28] expressing his gratification with reference to the pleasure he received during his visit in Washington. In camly reviewing all the facts he has come with apparent regret, to the conclusion that Dr M!![29] ↑of the observatory↓ has made the grave mistake of ~~assailing~~ ↑dwarfing↓ him and the almanac ~~for~~ for the purpose of personal ends. M. told one of the senators that any of the past Lieutenants could do the duty of a superintendent of the almanac and another that it was mere deduction from the labours of the observatory. I shoul think the Capt might say that M. is a knave as well as a fool unless we adopt the extreme utilitarian doctrine of doing good and being honest as a matter of policy, in this case the two terms would be merged in that of fool.

I have written to Bishop Potter in behalf of young Silliman[30] and have received an answer from him[31] in which he informs me that Robert Rogers[32] will probably be appointed. He is now anxious to press his project of a fine University and wishes something from me on the subject.

I am also requested to give a recommendation[33] to young Tighlman[34] who made the invention of decomposing by steam. I shall give him an expression of my opinion as to his abilities as an experimenter but I can say nothing relative to his talents as a teacher.[35] He is a young man of very extensive chemical and physical knowledge and of an original turn of mind.

I have received two letters requesting that my name may be allowed to be placed among those of the candidates for the chair in the University[36] also a letter urging me to come back to Princeton[37] now that the

Institution is under way— If I will agree to come an arrangement is promised by which the matter can be effected. Though these letters can have no effect in inducing at present a change in my position they are not ungreatful to my feelings just now in view of the attacks on the Smithsonian.

I think your course with reference to Frazer a very proper one. He has many good qualities and has done you in his day ~~many~~ ↑some↓ good turns it is therefore very natural that you should feel kindly disposed towards him but this should induce you to deal frankly with him though he may not properly appreciate your feelings and motives. He has been his own greatest enemy and if he goes on in the same course will destroy his reputation for candor and truth. I do not think from what I have learned that he has the least chance of success and therefore[D] going into the canvass would be an injury to him.

July 8th

I have delayed my budget with the hope of being able to give you some information as to whether the inspection of the new(?) light can be put off until you can join the commission. I called at the treasury to learn some thing relative to the matter yesterday morning but though Mr Hodge promised to write me during the day I have heard nothing since. The insertion of the name of Dr. P– was an act of the interested party, or of someone in the office. I requested now that it had been put on that it might stand provided you or Lieut. Jenkes[38] was[E] on the commission with me.

I am much pleased to hear that Dr. Ludlow has received a call to Newbrunswick. He was out of place in Phild and did not, from the first, make a favourable impression. He had considerable influence in the Dutch church but this was of no service to him in the University; and he was thrown among men of entirely different habits feelings, and opinions, without the power of addaptation. I hold him to be an honest man whose influence in life has been for good and I hope the remainder of his days may be more peaceful than those of the last few years in the University. Though he never spoke with me freely on the subject I know his situation was any thing but agreeable. His sons are now well settled in professions and therefore he has personally no cause to regret his residence in Phild. This is a very warm day—though the weather with a few exceptions has been very comfortable this summer.

July 9th

I have learned in a letter from Mr Ingersoll[39] that the following are the candidates for the chair in the University namely

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|---|---|
| R Rogers | Dr. Jackson[41] |
| B Silliman | Dr. Torrey |
| O W Gibbs | Dr. Kennedy[42] Phil[d] |
| W M Channing[40] | Dr. Thom Mitchell Ohio[43] |
| R Tighlman | Prof Frazer |

I give the names in the order in which they are written in the letter. The place calls forth the strength of the science of the country—of all the list I would prefer, as a matter of scientific justice, Dr. Torrey and I think he is the best lecturer of any of the lot I have heard. I doubt however whether he will be elected. Of the ~~four~~ ↑five↓ in the first column Tighlman has the most originality unless channing is equal to him in this respect, but I know not as to their talents as lectures, and teachers.— On the whole ~~though~~ as a man of science I would prefer Tighlman, I think it would be safer for the University to elect Silliman unless Dr. Torrey can be chosen. Mr Ingersoll asks my advice but I do not think it safe to give him in writing an opinion which may hereafter be construed into a personal matter.[44] I shall never shrink from responsibility in the line of my duty but I do not intend to put myself in the place of others in a matter of this kind. I may however state some general principles which I think ought to govern in the choice of a Professor in so important a chair. All things being equal the one ought to be preferred who has evinced the greatest talent and industry in the way of original research. I do not for an instant subscribe to the proposition advanced by Olmstead Frazer, and others that the most original man is the worst teacher—that he will be constantly talking about his own researches rather than imparting a knowledge of the general principles of the science. There is always an enthusiasm in an original investigator and a breadth of thought which awakes in a class a sperit which a second hand teacher can never arouse.[45] Take for example as the two extremes of the two classes a Faraday as the positive pole and a Webster of Cambridge[46] as the negative then fill up the intermediate ordinates with less striking examples and we shall have a preponderance of instances in favour of the original investigator. Besides this nothing can make up in the pride of a class in the reputation of their teacher for his want of originality as an author. Have you ever seen a pamphlet on this subject by Professor Olmstead?[47] It is a plea for stupidity or an apology for dunces. I think if I can find a copy I shall[F] notice it in a communication I have promised to the Educational Association which meets at Newark.[48] An opinion of this kind if adopted would prove in the highest degree prejudicial to the advance of true knowledge in our country.[G]

July 9th

I have heard nothing as yet from Mr Hodge and will now send McPeak with a message— I shall not again keep my budget so long but send it as it is written. I found in looking over it that like an old man as I am I had repeated some parts [---].[H]

The weather yesterday and to day are just about up to my mark of endurance. I cannot stand scarcely a degree more. Yesterday morning I went to the Treasury and was very near[ly][I] done up before I got back. I am howevr in good health— The iodine has not acted unpleasantly on me, otherwise than in reducing my strength. It is a wonderful medicine—two fleshy tumours which have been on my arm for upwards of ten years have almost entirely disappeared, under its operation.

Your letter[49] inclosing a communication from Prof. Bond[50] has been received. I think his remarks as to the latteral light correct. The experiment has been [---] ↑attempted↓ by some person, I think in Scotland and the result given in a number of Jameson's Journal.[51] An image of the sun was let into a dark room and received on a screen with a hole in the centre, of the size of the image; so that this could pass through into another dark room and the bright flames, if any existed, might be seen on the sides of the opening. The experiment however was not successful. So much light was found to exist around the borders of the image of the sun that no flames could be seen. This light was attributed to the reflections from the particles of dust in the atmosphere. I shall try this experiment perhaps with some variations. The second room was a darkened box which may have reflected back a considerable portion of light besides this if the lateral light was due to the reflection from the dust the effect might be obviated by making the experiment after a rain. The light behind the opening in the screen could be best got rid of by means of a large looking glass which would reflect it to one side into some dark place.

You may perhaps recollect that I was one of the first to see the fames in modern times during an observation of a partial eclipse at Princeton.[52] Mr. Alexander was observing with a yellow eye glass through the larger telescope while I was watching the sun with the smaller glass and a read eyepiece.

The appearance of an immense flame from a part of the dark edge of the moon caused me to cry out with surprise, while Mr. Alexander with the yellow eye glass saw nothing strange. We then changed telescopes and he witnessed the same phenomenon.

Before the receipt of your letter I had written to Prof. Curley[53] of Georgetown asking if his telescope could be used for experiments with

reference to photographing the image of the spots on the sun. He informs me[54] that it can but has not much hope that any thing can be accomplished.[55] The only thing which prevents my commencing operations immediately is the extreme heat of the weather which will not allow me in this Latitude to make any exertions.

I was somewhat vexed yesterday in looking over the last numbers of the Comptes Rendus to find that Prof Secchi formerly of Georgetown college had presented a paper to the French adademy on the heat of the different parts of the sun[56] made with an arrangement the same as that which I contrived and used at Princeton.[57] Humboldt mentions my experiments on the heat of the spots of the sun[58] and I spok with Secchi when he was at the Smithsonian on the subject or at least I am very sure that I did so, but he takes no notice of my researches. I do not recollect whether I published some observations on the different parts of the suns disk but I have a record of them. They were to be repeated. After all it is of little consequence and I have not been just to myself in suffering these experiments to remain so long unprosecuted. It frequently happens that my results are so familiar to myself that I [c]ease to put any value on them until some one else brings them forward or develops them in a more popular or a more definate manner—

I will mention for the information of Mrs Bache that our Mary has been on a visit to Elicotts mills. She spent upwards of a week with the family of the son of Dr Hare.[59] The visit did her much good and was apparently gratifying to the old Dr. Princeton commencement is over and Mrs H was much gratified to learn that her son had been chosen one of the Junior orators. It is somewhat remarkable that he should stand among the first of his class as a writer ↑and speaker↓ considering the deficiencies of his father in both these accomplishments. He has considerable taste for science and had it not been for his feeble health he would have taken a good stand in his class. For the purpose of recruiting I have furnished him with the needful for a trip to niagara. Our family will start for the north in the course of a week or two. This is an economical arrangement as well as one for health. Mr Alexander and myself make one family and divide the expense.

The messenger has returned from the Treasury and informs in a note from Mr Hodge[60] that it will be impossible to wait four weeks for you to come on. Cannot you leave before the time mentioned.

I am not very well pleased to engage in the matter. I thought at first that it would be a pleasant diversion of my thoughts after 9 months of continued confinement to the walls of the Norman castle! to have a week of excursion with you. I fear no name less distinguished will serve

to neuteralize the association with the other person named on the commission.

Mr Hodge requests me to call at the Department tomorrow. The weather is some what less severe this afternoon than it was yesterday.

With kind regards to Mrs B I remain very truly your

Friend
J– H–

Bache Papers, Smithsonian Archives.

1. George P. Bond, the assistant at the Harvard College Observatory. Henry to Stephen Alexander, June 15, 1852, Family Correspondence, Henry Papers, Smithsonian Archives; *Henry Papers, 7:*508n.

2. John Cassin was the leading ornithologist in the United States. *Henry Papers, 7:*50n.

3. Titian Ramsay Peale was a naturalist on the Wilkes Expedition responsible for the mammals and birds. However, Wilkes suppressed Peale's volume because of various problems with it and asked Cassin to revise it. Not until August 1852 did Wilkes and Cassin agree on a price: $2,000 a year for five years. The resulting volume, *Mammalogy and Ornithology,* which appeared in 1858, was, in the words of one historian, "a triumph of the new science." William Stanton, *The Great United States Exploring Expedition of 1838–1842* (Berkeley, 1975), pp. 328–329 (quotation on p. 329).

4. David Dale Owen, *Report of a Geological Survey of Wisconsin, Iowa and Minnesota,* 2 vols. (Philadelphia, 1852).

5. To remedy problems stemming from the practice of contracting out printing, Congress was considering a bill to create a position of superintendent of public printing. The bill passed on August 26, 1852. Centralization of public printing was completed in 1861 when Congress established the Government Printing Office. *100 GPO Years, 1861–1961: A History of United States Public Printing* (Washington, 1961), pp. ix, 22–23.

6. Henry had earlier expressed his own dissatisfaction with government printing. On March 24, 1852, for example, he wrote Senator Solon Borland, "requesting that Congressional reports of a scientific character should be better printed." Desk Diary, March 24, 1852.

7. A Senate select committee was reviewing a sample of the proposed 1850 census report. The sample included a historical sketch of Maryland and its counties, as well as a sketch of the state's geology. The committee, chaired by James A. Bayard of Delaware, submitted a report on June 28 that recommended deleting such historical and geological accounts and called for eliminating some four-fifths of the material the Census Bureau intended to publish. Bayard thought that the census report should focus on statistical inquiries, as authorized by Congress, and avoid interpretations of the statistics. He also stated that a "work of so scientific a character" as a geological account of a state "should be prepared by persons of established reputation as geologists, with sufficient time for the thorough and accurate performance of this duty." Congress ultimately accepted almost all of the committee's recommendations. *National Intelligencer,* June 29, 1852; July 2, 1852 (quotation); Margo J. Anderson, *The American Census: A Social History* (New Haven and London, 1988), pp. 47–49.

8. Mr. Todhunter had arrived on June 17. William Henry Harvey's sister, Hannah, had married Thomas Harvey Todhunter. Harvey lived with the Todhunters in Dublin. Desk Diary, June 17, 1852; Sophie C. Ducker, *The Contented Botanist: Letters of W. H. Harvey about Australia and the Pacific* (Melbourne, 1988), pp. 15, 352.

9. Bache had visited Dublin in 1836 during his two-year tour of European educational institutions. *Henry Papers, 2:*108n; *3:*96.

10. See Doc. 232.

11. Delegates from twenty-three states and territories met at the Smithsonian Institution on June 24 and June 25, 1852, to hold a national agricultural convention. The delegates designated themselves the United States Agricultural Society and called for the establishment of a department of agriculture in the federal government. Alfred C. True, *A History of Agricultural Education in the United States, 1785–1925,* United States Department of Agriculture Miscellaneous Publications, No. 36 (1929), pp. 90–91.

12. Not found.

13. Senator Stephen A. Douglas had called for a department of agriculture to be attached to the Smithsonian. He attacked the institution for a lack of "practical results" and claimed that it "is not what it was designed to be by its founder."

He specifically attacked research in astronomy as having "no practical bearing." *National Intelligencer,* June 26, 1852.

14. Marshall P. Wilder (1798–1886), president of the Massachusetts Board of Agriculture, was elected president of the United States Agricultural Society. *DAB.*

15. In the press account, Henry is paraphrased as saying that he would rather blow up the Smithsonian and send the funds back to England, than have it turned into an agricultural society. He argued that, in the words of the reporter, "Smithson intended not the diffusion of *useful* [italics in original] knowledge merely, but the increase of knowledge." He then went on to make the linkage between basic research and later application.

> All knowledge was *practical,* [italics in original] how abstruse soever it might to the uninitiated appear, and in good time would always vindicate itself. . . . The truth is, the higher the knowledge the more practical and useful, and in this view it was that agriculture is to be more advanced by the microscope than by the plough and harrow.

*National Intelligencer,* June 26, 1852.

16. Senator Thomas Jefferson Rusk (1803–1857). *DAB.*

17. Rusk praised the Smithsonian and its staff. While calling for an agricultural branch to be established at the Smithsonian, he called upon the federal government to pay for it through appropriations. *National Intelligencer,* June 26, 1852.

18. The convention thanked Henry for the use of the building. *Journal of the United States Agricultural Society,* 1852, *1:*20.

19. Douglas claimed that his earlier comments had been the result of his mistaking a remark Henry had made in jest as a serious statement. Presumably, the reference was to Henry's claim that devoting the Smithsonian to agriculture would turn it into a "cow-pasture." *Journal of the United States Agricultural Society,* 1852, *1:*16, 21; *National Intelligencer,* June 26, 1852 (quotation).

20. The speech has not been identified.

21. Senator John H. Clarke (1789–1870). *BDAC.*

22. Josiah Holbrook was writing a column titled "Democracy of Science" for the *National Intelligencer.* The column appeared at intervals of approximately five days. Holbrook called for the diffusion of scientific knowledge to the public through the public schools, the press, and the government. *National Intelligencer,* June 17, 1852.

23. At the May 1 meeting of the Board of Regents, Henry presented Holbrook's request for the publication of his tracts on agricultural geology and chemistry. The board referred the request to the secretary and the executive committee. There is no record of any further action having been taken. Rhees, *Journals,* p. 81.

24. Not found, but dated July 3 according to Bache to Henry, July 5, 1852, General Manuscripts Collection, Special Collections, University of Pennsylvania Library.

25. In 1849, inventor Robert Grant of New York began testing a "calcium lamp" for locomotives, which he then adapted for lighthouses. Grant's lamp was a modification of the Drummond light, which had been tested for lighthouses and found wanting by European scientists. In a Drummond lamp, a small ball of lime was ignited by oxyhydrogen gas blown through the flame of an alcohol lamp. Grant claimed to have devised a new form of the calcium point that resisted heat much better and a cheaper method of generating the gas.

On September 28, 1850, Congress appropriated $5,000 to conduct tests on the apparatus, which was purported to be much less expensive than existing methods of illumination. It was not until July 1852, however, that Grant's apparatus was apparently ready for inspection. Acting Secretary of the Treasury William L. Hodge appointed Henry, Bache, and Charles G. Page as members of an examining commission, with Henry as chair. Bache had to decline because Hodge wanted the report as quickly as possible and he was tied up with Coast Survey business; George Washington Smith was appointed in his place. In late July, the commission members went to Staten Island to "inspect the apparatus, & examine its application and practical adaptations to the purpose of illuminating Lighthouses, & the economy of its use." However, the apparatus was not yet ready for testing. Grant asked for additional funds and time to complete his work. As members of the committee on experiments for the Light-House Board, Henry and Bache recommended approving Grant's request. Almost four years later, however, Grant had not yet delivered a satisfactory form of the apparatus.

*Henry Papers, 3:*387; *National Intelligencer,* November 6, 1849; September 25, 1850; *U.S. Statutes at Large, 9:*503; William L. Hodge to Bache, Henry, and Page, July 2, 1852, and Hodge to Henry, Torrey, and Page, July 13, 1852, Letters Sent by the Secretary of the Treasury re Lighthouses, RG 26, Records of the United States Coast Guard, National Archives (quotation); Bache to Henry, July 5, 1852, General Manu-

scripts Collection, Special Collections, University of Pennsylvania Library; [Hodge] to Henry, [July 1852], Henry Papers, Smithsonian Archives; Henry to Harriet Henry, July 23, 1852, Family Correspondence, Henry Papers, Smithsonian Archives; Minutes of the Light-House Board, February 22, 1853, September 5, 1853, March 28, 1856, Records of the United States Coast Guard, RG 26, National Archives.

26. William L. Hodge.

27. Possibly E. K. Eaton, a chemist in Rochester, New York. Rochester City Directory, 1851–1852.

28. Doc. 221.

29. Matthew Fontaine Maury.

30. Henry described Benjamin Silliman, Jr., who was a candidate for the chair of chemistry at the medical school of the University of Pennsylvania, as exhibiting "unusual talents in fluent lecturing and simultaneous successful manipulation," as well as "skill in original research." Henry to Alonzo Potter, June 29, 1852, University Archives and Records Center, University of Pennsylvania.

31. Doc. 222.

32. Robert Empie Rogers, professor of chemistry at the University of Virginia and younger brother of the late incumbent, James B. Rogers. *Henry Papers, 5:*268n, 269n; Elliott, *Dictionary.*

33. Henry was referring to a letter from William Rawle (July 3, 1852, Henry Papers, Smithsonian Archives), one of the trustees of the University of Pennsylvania.

34. Richard A. Tilghman, a graduate of the University of Pennsylvania (1841), was an industrial chemist. *Henry Papers, 6:*507n.

35. Henry's letter not found.

36. One letter is Doc. 214; the other is not found.

37. Doc. 219.

38. Thornton Alexander Jenkins (1811–1893), a naval lieutenant who from 1848 to 1852 directed observations in the Gulf Stream for the United States Coast Survey. Jenkins had conducted a study of European lighthouse systems in 1845 and was secretary of the first temporary lighthouse board from 1851 to 1852. *DAB.*

39. Joseph Reed Ingersoll, chairman of the University of Pennsylvania's board of trustees, wrote Henry on July 6, 1852 (Henry Papers, Smithsonian Archives). *Henry Papers, 6:*19n.

40. Possibly William Francis Channing. Although better known to Henry as an electrical inventor, Channing did have a medical degree from the University of Pennsylvania. *Henry Papers, 7:*104–105; *DAB.*

41. Charles T. Jackson.

42. Alfred L. Kennedy (1818–1896), professor of medical chemistry at the Philadelphia College of Medicine and a graduate of the medical school of the University of Pennsylvania. *The Twentieth Century Biographical Dictionary of Notable Americans* (Boston, 1904).

43. Thomas Daché Mitchell (1791–1865), formerly professor of chemistry at Miami University in Ohio, and in 1852 professor of medicine, obstetrics, and medical jurisprudence at the Philadelphia College of Medicine. *Who Was Who in America: Historical Volume, 1607–1896,* rev. ed. (Chicago, 1967).

Henry did not know Mitchell, and when asked his opinion replied that "I have no doubt that he is a very promising man but he has not performed enough as yet in the way of chemestry." John Miller to Henry, June 25, 1852, Henry Papers, Smithsonian Archives; Henry to Miller, June 26, 1852, Miller Collection, Manuscripts Division, Department of Rare Books and Special Collections, Princeton University Library (quotation).

Mitchell wrote Henry on June 28 (Henry Papers, Smithsonian Archives), enclosing a biographical sketch (same location) and telling him where Henry might find copies of his publications in Washington. He tried to assure Henry that he had kept up with "the perpetual improvements in chemical science."

44. Henry's reply to Ingersoll is not found.

45. For Henry's earlier comments on this issue, see *Henry Papers, 6:*474–478.

46. John White Webster.

47. *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).

48. Henry was unable to attend. *Proceedings of the American Association for the Advancement of Education, 1852, 2:*22.

49. Bache to Henry, July 5, 1852, General Manuscripts Collection, Special Collections, University of Pennsylvania Library.

50. Bache enclosed a letter from George Bond, dated June 23, 1852 (Bache Papers, Smithsonian Archives). In it, Bond responded to Bache's request to evaluate a plan by Charles Babbage for observing solar prominences and a proposal to photograph the sun. He concluded by asking Bache to join him in urging Henry to return to his research on the physics of the sun.

At the time of Bond's letter, solar prominences could only be observed during total eclipses. To view them at other times, Babbage had suggested "shutting off the solar light by means of a disc introduced at the focus of the object glass" of the telescope. Bond rejected the idea because of "the impossibility of excluding the indirect

rays." It was not until 1930 that Bernard Lyot invented the coronograph, which enabled astronomers to observe the solar atmosphere without waiting for total eclipses (*DSB,* s.v. "Lyot, Bernard").

51. The experiment was attempted at the Edinburgh Observatory at the suggestion of James Nasmyth. C. Piazzi Smyth, "Meteorological and Astronomical Notices," *The Edinburgh New Philosophical Journal,* 1851, *51:*379–381.

52. Henry and Stephen Alexander had observed the annular solar eclipse of September 18, 1838. At the time, Alexander thought that the prominences were indications of the existence of a lunar atmosphere. *Henry Papers, 4:*120.

53. Letter not found.

54. Curley's reply not found.

55. The first daguerreotype of sunspots was taken in 1845 by J. B. L. Foucault and Hippolyte Fizeau. The feat was not repeated until 1857. Dorrit Hoffleit, *Some Firsts in Astronomical Photography* (Cambridge, 1950), pp. 16–17.

56. A. Secchi, "Sur la distribution de la chaleur à la surface du disque solaire," *Comptes rendus,* 1852, *34:*643–647.

57. For Henry's experiments and a discussion of the controversy with Secchi, see *Henry Papers, 6:*145–148.

58. Henry is referring to the following passage in Alexander von Humboldt's *Cosmos: A Sketch of a Physical Description of the Universe,* trans. E. C. Otté and B. H. Paul, 5 vols. (London, 1849–1858), *4:*394:

> Professor Henry, of Princeton, North America, had already shown, by his experiments in 1815 [1845], that the Sun's spots radiate a perceptibly less heat than those portions on which there were no spots. The images of the Sun and of a large spot were projected on a screen, and the differences of heat measured by means of a thermo-electrical apparatus.

59. Robert Harford Hare. *Henry Papers, 7:*498n.

60. Hodge to Henry, [July 1852], Henry Papers, Smithsonian Archives.

## 219. FROM JOHN MACLEAN

College of New Jersey
Princeton, June 25th 1852

[My] dear friend

Can you not attend our Com[men]cement on Wednesday next? I understand your son William is to speak on the evening before. I am very anxious to see you, in regard to the matter which I mentioned to you last winter.[1] I am quite confident that we could raise a fund of thirty or forty thousand dollars, for a new Professorship, if you will but consent to take it. As the friends of the Seminary have abandoned the idea of endowing a fifth professorship in that institution, partly in consequence of opposition to the plan itself, in various pa[rts] of the church, I doubt not ↑that↓ many of tho[se] who were favourable [. . .][A] fully aid the College in endowing a Profes[sor]ship, in which provision should be made f[or] teaching the true relations between scie[nce] and revealed truth: and especially if th[ere] should be a condition, in the subscriptions to the requisite fund, that the students of the Seminary should have access to all the lectures of the Professor in this department. I do honestly believe, that you would render a most valuable service to the interests of truth and religion, as well as to both the College and Seminary here were ↑you↓[B] to consent to arrangement suggested above.— Don't say