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are considered anti Baconian. I must write to him on some points.⁶ It is of the highest importance that we ↑(Ie you and myself)↓ be on the right foundation and that we pull together in the advan of the science of our country.

J-H-

Bache Papers, Smithsonian Archives.

1. To the New York City Board of Underwriters. See Doc. 234.

2. Not found, but probably the letter of November 26, 1856, written in reply to Doc. 234.

3. Letter not found.

4. On November 24, 1856, Henry had written Peirce regarding lectures the latter had promised to deliver at the Smithsonian. He had asked for "the number—the titles and the approximate time." Peirce Papers, Houghton Library, Harvard University.

5. Peirce presented four papers at the 1856 meeting of the American Association for the Advancement of Science. None of them were published and their titles throw little light upon Henry's remark. *AAAS Proceedings*, 1856, 10:222.

6. Henry's letter has not been found, but whatever he wrote conveyed his unhappiness with Peirce's proposed lecture series and touched a nerve. Peirce responded by asking Bache to persuade Henry to forgo the lectures: "I have no desire to deliver them to an audience which cannot comprehend them." He went on to describe the lectures as "my delight, my joy, my most precious pearles, and it would be a great grief to give them where they were not valued."

Bache reassured Peirce that Henry esteemed the lectures highly, but did not want to scare off

the potential audience. Peirce eventually agreed to a change in the titles of the lectures (we do not know what the original titles were) and he presented six lectures during the second half of January and early February with the overall title of "Potential Physics." The titles of the individual lectures were "The Elements of Potential Physics. The Material Universe Considered as a Machine, as a Work of Art, or as the Manifest Word of God"; "Potential Arithmetic"; "Potential Algebra"; "Potential Geometry"; "Analytic Morphology, or the World's Architecture"; and "The Realization of the Imaginary, and the Powers of Justice and Love." The lectures were praised in the newspapers, although their scholarly and transcendental nature was noted, and attracted a good audience. Henry was pleasantly surprised by the response.

Peirce to Bache, December 3, 1856 (quotation); Bache to Peirce, December 6, 1856; and Henry to Peirce, December 28, 1856, Peirce Papers, Houghton Library, Harvard University; Henry to Asa Gray, January 27, 1857, *Historic Letters*, Archives, Gray Herbarium Library, Harvard University; *National Intelligencer*, January 19, 1857; *Washington Star*, January 19, February 2, 1857; *Smithsonian Annual Report for 1856*, p. 46.

239. TO JEFFERSON DAVIS

Smithsonian Institution
December 4, 1856.

To the Secretary of War.
Sir,

In compliance with the request that the Smithsonian Institution would furnish you with facts & suggestions on the subject of nitre, with special reference to its production in this country,¹—I have the honor to inform you that I have referred the subject to a commission of gentlemen well

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versed in the science of chemistry,² & have received from them the following information.—

- 1st The natural supply of saltpetre from our western caves is too small to be of importance—even in time of peace, and would be entirely inadequate to our wants in the emergency of war.—
- 2nd The natural production of nitre only takes place to a large extent in certain tropical countries,³ & the means hitherto known for its artificial production are too slow in execution, and too small in results to meet the demand of war, since years of preparation are required before they become productive.—
- 3rd Though the old methods of the artificial production of saltpetre have fallen into partial disuse, and no new ones have been proposed, yet it is highly probable that with our present knowledge of chemistry, means could be devised for its ready & abundant manufacture.
- 4th. There is however no absolute necessity at present, to seek other means during the present low price of saltpetre, but if the government desires to prepare for an emergency in which the country would be cut off from importations, it might be considered important to institute a series of researches for the discovery of a more efficient mode of manufacturing nitre.

In behalf of the Regents, I am free to say that should the War Department think fit to make a small appropriation for the object mentioned in the last paragraph, the Smithsonian Institution would undertake the direction of the investigations, and carry them on in its laboratory.⁴

I have the honor to be
Very Respectfully
Your obed^t serv^t
Joseph Henry
Sec^y S.I.

Letters Received, Records of the Office of the Chief of Ordnance, RG 156, National Archives.

In William Hinwood's hand, with signature and title by Henry. Printed in U.S. House, 34th Congress, 3d Session, *Message of the President of the United States, Transmitting Sundry Letters on the Subject of Furnishing Saltpetre for the Military Service, &c., &c.*, House Executive Documents, No. 75 (1857), pp. 2-3.

1. On May 22, 1856, Henry K. Craig, the chief of army ordnance, reported to Davis on deposits of nitre (also known as niter or saltpeter), a necessary element in the manufacture of gunpowder, in Kentucky caves. He recommended that the army investigate the possibility of manufacturing nitre "in the event of a failure

of the foreign supply of that necessary article, or an insufficiency from the natural home formation," and that the Smithsonian conduct the investigation on behalf of the army. Davis approved, and on June 10 forwarded Craig's report to Henry, with a request for "such information upon the subject as it may be in the

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power of the Smithsonian Institution to furnish." Craig to John B. Floyd, June 29, 1857, in same location as Henry's letter; Davis to Henry, June 10, 1856, Letters Sent, Records of the Office of the Secretary of War, RG 107, National Archives.

2. The members of the commission have not been identified.

3. Most nitre came from British India. Robert V. Bruce, *Lincoln and the Tools of War* (1956; Urbana, Illinois, 1989), p. 146.

4. In response, Craig recommended that an appropriation of \$10,000 be obtained from Congress to fund the proposed experiments. Davis and President Pierce agreed, and the recommendation was referred to the House Committee on Military Affairs on February 14, 1857. The congressional session ended on March 3, however, without passage of the appropriation.

Craig renewed his effort with the new administration and the new Congress. He alerted Secretary of War John B. Floyd, Davis's successor, on June 29, 1857, that he planned to ask for \$7,500 for the experiments in his next budget. As an interim measure, he requested that Floyd provide the Smithsonian with \$2,500 out of War Department funds to pay for one year's experiments. Floyd returned Craig's letter with the endorsement "not approved." This ended the matter until the Civil War increased interest in alternative sources of nitre, whether from countries other than India, or through chemistry.

Message of the President of the United States, Transmitting Sundry Letters on the Subject of Furnishing Saltpetre for the Military Service; Craig to Floyd, June 29, 1857, cited above; Bruce, pp. 146-147, 211-213, 270.

240. TO ALEXANDER DALLAS BACHE

Smithsonian Inst

Dec 5th 1856

My Dear Professor

Capt. Rodgers of the Behrings Str. expedition has called to request that you and myself will use our influence with the secretary of the navy¹ to induce him to ask for an appropriation for the purpose of reducing the rich materials ~~he has~~ collected to a form for publication. The specimens collected are now deposited at the Institution and are considered by those who have exam'd them of much value.²

I sent you yesterday a letter³ from our friend William Mitchell of Nantucket⁴ asking that we would call with a member of Congress on the same secretary relative to his daughter⁵ and if you agree to the propositions we can make one business of both matters.

I lecture at Alexandria on Tuesday night⁶ and as I shall require a day's preparation I cannot well attend to this business until Wednesday.

I remain very truly

Your friend

J-H-

Prof. A. D. Bache

Bache Papers, Smithsonian Archives.

1. James C. Dobbin.

2. Henry wrote to Dobbin a few days later. See Doc. 244.

Rodgers was unable to obtain sufficient funding to publish his results prior to the outbreak of the Civil War; the war ended all hope of pub-