

Sir Francis Darwin letters, 1868-1925
1868-1925
Mss.B.D254

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Summary Information

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Abstract	<p>These are principally letters to Charles Edward Sayle on musical programs and to Thomas Roscoe Rede Stebbing about the Linnean Society, the Royal Society, and the publication of Charles Darwin's papers. There is also a letter of Charles Darwin to Stebbings and several letters of Francis Darwin to other persons. In addition, there are several letters to William Bowman (as well as from Theodor Wilhelm Engelmann to Bowman), and one from Raphael Meldola.</p>

Background note

Darwin, Francis (1848-1925, APS 1909) was a British botanist. With his father the famous naturalist Charles Robert Darwin he collaborated to publish *The Movement of Plants* in 1880. From his botanical lectures to undergraduates, he also published two textbooks, *Practical Physiology of Plants*, co-authored with E.H. Acton and *The Elements of Botany*. Darwin also collected and edited his father's letters for publication in 1887 in an annotated edition that is considered one of the best collections of its kind. This collection, together with two subsequent volumes have provided the basis for all subsequent work on Charles Darwin.

Francis was the third son of Charles Robert Darwin and his wife Emma Wedgwood. Darwin was educated at home and later at Clapham Grammar School, before matriculating at Trinity College, Cambridge in 1866. In 1866 he took a degree in mathematics, and the following year first-class honors in the natural science tripos. Afterward, he entered St. George's Hospital in London, aiming to become a physician, but under the influence of Dr. Emanuel Edward Klein, the father of British microbiology, he studied histology at the Brown Institute. He presented a thesis and received the M.B. degree in 1875.

For the next eight years Darwin worked as the secretary and botanical assistant to his father Charles Robert Darwin and lived at Down with his parents after the death of his first wife Amy in 1876. As a result of this eight-year collaboration with his father, Francis co-authored an 1880 work on *The Movement of Plants*. Although much continental research on the origins of plant curvature in response to light sought a physicochemical explanation, the Darwins were unconvinced, in part since Francis had demonstrated in his earlier work with Julius Sachs that roots grow more slowly in the light, than in darkness. Also, the experimental and evolutionary orientation of father and son left them uncommitted to discovering a direct relationship of cause and effect. Instead, they put forward the idea of irregular circumnutatory movements to explain phototropic responses in plants. They showed that geotropisms, like phototropisms and traumotropisms (the curvature away from an apical wound) were the result of differential growth rates. However, their most important contribution was to demonstrate that some substance in the apex of the root or shoot that is acted upon by light or gravity transmits its effects to other part of the plant, so that the effects of these stimuli on curvature are indirect. Francis Darwin later continued this research on his own, and refined his experimental techniques. Placing the tip of a root in a horizontal glass tube, he discovered that the rest of the root grew in irregular twists in response to continual signals from the apex "to get vertical". As a result, he rejected the idea of circumnutation and showed that gravity affects shoots by apical stimulus the same way it affects roots. In this connection Darwin accepted the suggestion of Nemeč and Gottlieb Haberlandt that gravi-perception depends on the falling of starch grains.

After his father's death in 1882, Francis Darwin moved to Cambridge, where in 1883 he married Ellen Crofts, a lecturer in English literature at Newnham College. At Cambridge Darwin became university lecturer in botany, a fellow of Christ's College, and in 1888, reader in botany. During this period his research interests shifted to the study of water movement within plants, while he taught botany and edited his father's letters. Between 1886 and 1889 the stomatal openings of plants were first observed on the undersides of leaves under the microscope. Among the early researchers, Darwin published his first

papers on the distribution of stomata and the transpiration of plants. In order to better investigate the function of stomata, he introduced the horn hygroscope in 1897. Later he invented the porometer to study transpiration by drawing air through the leaf and measuring its velocity. As in his earlier research, Darwin maintained that transpiration in plants was an indirect result of the effects of light. Unlike Weisner, who had suggested a direct effect of light on transpiration, due to its absorption by plant tissues and its transformation into heat, Darwin showed that the red light of the spectrum induced the opening of the stomata, and that the degree of their opening determined the transpiration rate.

Darwin's major literary endeavors during these years included the publication of his undergraduate lectures on botany at Cambridge. These he published in two books, *Practical Physiology of Plants*, and *The Elements of Botany*, which presented a stimulating new approach to basic botanical principles. He also began collecting and editing his father's letters for publication in 1887, finishing the final two volumes in 1903. In addition to this editorial work, Darwin authored biographies of his brother George Darwin, Francis Galton, Thomas Hearne, and the botanists Joseph Hooker and Stephen Hales.

For his many contributions to science, Francis Darwin received several important honors. In 1882 he became a fellow of the Royal Society of London. In 1909 he received an honorary Sc.D. from Cambridge. Also, in 1912, at the time of the Darwin centennial he received the Darwin medal of the Royal Society. The following year he was knighted. Darwin was married three times in his life; first to Amy Ruck, then to Ellen Crofts, and finally to Florence Fisher. He outlived all of his wives and died a widower in 1925.

Administrative Information

Publication Information

American Philosophical Society

Provenance

Acquisition Information

Received and accessioned, 1962-1980. See in-house shelf list for additional accession numbers and dates.

Indexing Terms

Corporate Name(s)

- Linnean Society of London.
- Royal Society (Great Britain).

Personal Name(s)

- Bowman, William, Sir, 1816-1892
- Darwin, Charles, 1809-1882
- Engelmann, Th. W., (Th. Wilhelm), 1843-1909
- Meldola, Raphael
- Sayle, Charles Edward
- Stebbing, Thomas Roscoe Rede, b. 1835

Subject(s)

- Botany.
- Science -- Societies, etc.

Collection Inventory

Papers

Bowman, William, Sir, 1816-1892

1 February 1868

Letter to [Sir Francis] Darwin

**Stebbing, Thomas Roscoe Rede,
1835-1926**

5 March 1869

7x4-1/2

Letter to Charles [Robert] Darwin

L. 1p. Copy. (see Sir Francis Darwin papers.) Praises his works. Enclosed originally in: Sir Francis Darwin to Stebbing; Aug. 5, 1886. Formerly B D254.2 no. 365

Darwin, Francis, Sir, 1848-1925

25 May 1878

Letter to G.J. Romanes

Darwin, Francis, Sir, 1848-1925

25 May 1882

Letter to

Darwin, Francis, Sir, 1848-1925

28 May 1882

7x4-1/2

Letter to "Dear Madam"

Down, Beckenham, A.L.S. 1p. Thanks for letting him see letters of Charles Darwin.

Darwin, Francis, Sir, 1848-1925

29 May 1882

4 1/2" x 7"

Letter to [Armand de Quatrefages ?]

Down, Beckenham, A.L.S. 2p. Desires letters of his late father, Charles Darwin.

Darwin, Francis, Sir, 1848-1925

29 May 1882

Letter to L. Errera

Francis Darwin asks to see and copy any letters sent by his father Charles Darwin to Leo Errera that are still in the recipient's possession.

Darwin, Francis, Sir, 1848-1925

24 June 1882

4-3/4x3

Papers

Letter to T[homas] R. Stebbing, Tunbridge
Wells

A.L.S.on postal card. 1p.and add. (see Sir Francis Darwin papers) Thanks for copies of his father's letters. Formerly B D254.2

Darwin, Francis, Sir, 1848-1925 21 July 1882

Letter to Leo Errera

Francis Darwin expresses his gratitude to Dr. Errera's loan of letters sent to him from Charles Darwin.

Darwin, Francis, Sir, 1848-1925 31 August 1882 5" x 4"

Letter to Dr. Zacharias

Down, Beckenham, A.N.S. 1p. Acknowledges copy of work on his father [Charles Darwin].
Formerly B D254.1

Darwin, Francis, Sir, 1848-1925 4 October 1882

Letter to Rev. O.P. Cambridge

Darwin, Francis, Sir, 1848-1925 25 October 1882

Letter to Leo Errera

Francis Darwin reports that there is no really good bust of his father Charles.

Darwin, Francis, Sir, 1848-1925 26 October 1882

Letter to Leo Errera

Francis Darwin thanks Dr. Errera for the loan of his father's letters, which he is returning. He also reports that he has made copies of the letters marked 1,2, and 5.

Darwin, Francis, Sir, 1848-1925 7 March 1883

Letter to Sir William Bowman

Cambridge, A.L.S. 2p. Concerns Darwin's desire to publish some of Bowman's correspondence.
Originally B D254.5

Errera, Leo, 1858-1905 29 April 1883

Letter to Francis Darwin

Papers

Reports that he has received the Darwin letters returned to him by Francis Darwin.

Darwin, Francis, Sir, 1848-1925 29 October 1883

Letter to Professor Errera

Francis Darwin thanks Errera for the "splendid lot of papers," although he hasn't had time to look at them. He also thanks him for sending a copy of [Georg] Ludwig's paper, which he promises to return.

Darwin, Francis, Sir, 1848-1925 [1884]

Letter to [Sir William] Bowman

Francis Darwin thanks Bowman for the loan of the [Charles Darwin] letters which he promises to "safely" return.

Darwin, Francis, Sir, 1848-1925 7 July 1884

Letter to [Sir William] Bowman

Francis Darwin asks Sir William Bowman to send him [additional?] letters of Charles Darwin, which he will read, when he returns to Cambridge.

Darwin, Francis, Sir, 1848-1925 29 November 1885 7x4-1/2

Letter to [Henry Nicholson?] Ella Combe

Cambridge, A.L.S. 7p. (see Sir Francis Darwin papers.) Concerning motion of water in plants. Refers to Michael Foster. Formerly B D254.2

Darwin, Francis, Sir, 1848-1925 5 August 1886 7x4-1/2

Letter to [Thomas R.R. Stebbing]

Cambridge, A.L.S. 3p. Enc. (see Sir Francis Darwin papers.) Wishes to publish his father's letters to him and asks questions concerning them. For enc., see: Stebbing to C. Darwin; March 5, 1869. Formerly B D254.2

Bowman, William, Sir, 1816-1892 27 January 1890

Letter to [Theodor Wilhelm] Englemann

Englemann, Paula Maria 2 February 1890

Letter to William Bowman

Papers

Bowman asks [Theodor Wilhelm] Englemann for copies of any letters from Charles Darwin to Franciscus Cornelis Donders, since he is writing a memoir of Donders for the Royal Society.

Bowman, William, Sir, 1816-1892

6 February 1890

Letter to [Sir] Francis Darwin

Darwin, Francis, Sir, 1848-1925

20 February 1890

Letter to Sir William Bowman

Bowman, William, Sir, 1816-1892

10 April 1890

Letter to [Sir] Francis Darwin

Bowman, William, Sir, 1816-1892

10 April 1890

Letter to Paula [Englemann]

Darwin, Francis, Sir, 1848-1925

9 September 1891

7x4-1/2

Letter to ----

Cambridge, A.L.S. 1p. (see Sir Francis Darwin papers.) Cannot accept the invitation, for he will not be in England on that date. Formerly B D254.2

Darwin, Francis, Sir, 1848-1925

October 1893

[Sir] F[rancis] Darwin. Statement as to the authenticity of certain letters from Charles R. Darwin to Errera

Statement as to the authenticity of certain letters from Charles R. Darwin to Professor Errera.

Darwin, Francis, Sir, 1848-1925

10 June 1896

Letter to Professor Errera

Francis Darwin wishes to introduce Errera to a Dr. C. Curtis of Columbia College in the United States, who is interested in plant physiology.

Darwin, Francis, Sir, 1848-1925

27 December 1896

Letter to Dear Biffen

Darwin, Francis, Sir, 1848-1925

4 November 1897

7x4-1/2

Letter to [Charles Edward?] Sayle

Papers

Cambridge, A.L.S. 3p. (see Sir Francis Darwin papers.) Regardless of forthcoming events, he has ordered "100 to me & 100 to you.' Formerly B D254.2

Darwin, Francis, Sir, 1848-1925 19 November 1897 7x4-1/2
Letter to [Charles Edward?] Sayle

Wychfield, A.L.S. 2p. (see Sir Francis Darwin papers.) Thinks they should not print names of subscribers on the programme. Formerly B D254.2

Darwin, Francis, Sir, 1848-1925 20 November 1897 7x4-1/2
Letter to [Charles Edward?] Sayle

Wychfield, A.L.S. 4p. (see Sir Francis Darwin Papers.) Plans for the opening concert. Formerly B D254.2

Darwin, Francis, Sir, 1848-1925 17 January 1898 7x4-1/2
Letter to [Charles Edward?] Sayle

Cambridge, A.L.S.with initials. 2p. (see Sir Francis Darwin papers.) Concerning a concert. Formerly B D254.2

Darwin, Francis, Sir, 1848-1925 10 June 1899 7x4-1/2
Letter to ----

Cambridge, A.L.S. 2p. (see Sir Francis Darwin papers.) Declines invitation to lecture. Formerly B D254.2

Darwin, Francis, Sir, 1848-1925 23 August 1899
Letter Leo Errera

Francis Darwin says he will be happy to meet with him on Saturday at 12:30, but is unsure whether Stahl will come.

Darwin, Francis, Sir, 1848-1925 25 August 1899
Letter to Professor Errera

Francis Darwin says that his wife, who is in France will be coming along with him to meet Errera, as will Stahl.

Darwin, Francis, Sir, 1848-1925 3 July 1902

Papers

Letter to Raphael Meldola

Darwin, Francis, Sir, 1848-1925 13 October 1904 7x4-1/2

Letter to ----

A.L.S. 3p. (see Sir Francis Darwin papers.) Wishes to know the duties of the presidency, for the "R[oyal] Soc[iety] takes as much of my time as I can possibly spare." Formerly B D254.2

Darwin, Francis, Sir, 1848-1925 17 October 1904 7x4-1/2

Letter to T[homas] R. Stebbing

A.L.S. 1p. (see Sir Francis Darwin papers.) Will serve as president if elected. Formerly B D254.2

Darwin, Francis, Sir, 1848-1925 20 October 1904 3-1/2x4-1/2

Letter to T[homas] R. Stebbing, Tunbridge Wells

A.L.S.on postal card. 1p.and add. (see Sir Francis Darwin papers.) Will come to Linnean Society. Formerly B D254.2

Darwin, Francis, Sir, 1848-1925 16 December 1905 7x4-1/2

Letter to [Thomas R.] Stebbing

Cambridge, A.L.s. 1p. (see Sir Francis Darwin papers.) The date is fine, for there "is no R[oyal] Society Council" to take precedence. Formerly B D254.2

Darwin, Francis, Sir, 1848-1925 3 December 1912 9x7

Letter to [Henry Benjamin?] Wheatley

Gloucester, A.L.S. 1p. (see Sir Francis Darwin papers.) Cannot accept invitation. Formerly B D254.2

Darwin, Francis, Sir, 1848-1925 13 November 1921

Letter to G.W. Blodgett

Darwin, Francis, Sir, 1848-1925 24 April 1925

Letter to

Bowman, William, Sir, 1816-1892 31 January, undated

Letter to [Sir Francis Darwin]

Papers

Darwin, Francis, Sir, 1848-1925	30 March, undated	8x6
Letter to [Thomas R.R.] Stebbing		
Cambridge, A.L.S. 2p. (see Sir Francis Darwin papers.) Cannot attend meeting. Formerly B D254.2		
Darwin, Francis, Sir, 1848-1925	24 November, undated	7x4-1/2
Letter to [Charles Edward?] Sayle		
Wydefield, A.L.S. 3p. (see Sir Francis Darwin papers.) Concerning a visitor. Formerly B D254.2		
Darwin, Francis, Sir, 1848-1925	Friday, undated	7x4-1/2
Letter to [Charles Edward?] Sayle		
Cambridge, Friday. A.L.S. 2p. (see Sir Francis Darwin papers.) Concerning musicals. Formerly B D254.2		
Darwin, Francis, Sir, 1848-1925	Friday, undated	
Letter to [Charles Edward?] Sayle		
More discussion of program notes for a musical production.		
Darwin, Francis, Sir, 1848-1925	Friday, undated	7x4-1/2
Letter to [Charles Edward?] Sayle		
Wychfield, Friday. A.L.S. 3p. (see Sir Francis Darwin papers.) Concerning musical programmes. Formerly B D254.2		
Darwin, Francis, Sir, 1848-1925	Saturday, undated	7x4-1/2
Letter to [Charles Edward?] Sayle		
Cambridge, Saturday. A.L.S. 3p. (see Sir Francis Darwin papers.) Lists names he thinks important. Formerly B D254.2		
Darwin, Francis, Sir, 1848-1925	Saturday, undated	7x4-1/2
Letter to [Charles Edward?] Sayle		
Cambridge, Saturday. A.L.S. with initials. 2p. (see Sir Francis Darwin papers.) Comments on music for the programme. Formerly B D254.2		
Darwin, Francis, Sir, 1848-1925	undated	

Papers

Letter to A. Knight

Darwin says that he knows nothing positive about the fern, but refers the correspondent to Willis's Flowering Plants and Ferns.

Darwin, Francis, Sir, 1848-1925 undated 7x4-1/2

Letter to [Charles Edward?] Sayle

A.L.S. 4p. (see Sir Francis Darwin papers.) Concerning programme notes for a musical performance. Formerly B D254.2

Darwin, Francis, Sir, 1848-1925 undated 7x4-1/2

Letter to [Charles Edward?] Sayle

Cambridge. A.L.S. 2p. (see Sir Francis Darwin papers.) Concerning music. Formerly B D254.2

Darwin, Francis, Sir, 1848-1925 undated 7x4-1/2

Letter to [Charles Edward?] Sayle

A.L.S. 1p.on printed note. (see Sir Francis Darwin papers.) Needs singer for a program. Formerly B D254.2

Darwin, Francis, Sir, 1848-1925 undated 7x4-1/2

Letter to [Charles Edward?] Sayle

A.L.S. 1p. (see Sir Francis Darwin papers.) Concerning the sale of tickets. Formerly B D254.2

Darwin, Francis, Sir, 1848-1925 undated 7x4-1/2

Letter to [Charles Edward?] Sayle

Cambridge. A.L.S. 1p. (see Sir Francis Darwin papers.) Thanks for enclosed. Formerly B D254.2

Darwin, Francis, Sir, 1848-1925 undated

Letter to Dr. Trentler

Thanks Dr. Trentler and his wife for the card.

Darwin, Francis, Sir, 1848-1925 undated

Letter to

Darwin, Francis, Sir, 1848-1925 undated 7x4-1/2

Papers

Letter to ----

Cambridge. A.L.S. 1p. (see Sir Francis Darwin papers.) Concerning courses on botany. Formerly B D254.2

Darwin, Francis, Sir, 1848-1925 undated

Letters to various persons

1869-1912. D. 27 items. Various sizes. Formerly B D254.2
