

SOME UNPUBLISHED LETTERS OF CHARLES DARWIN

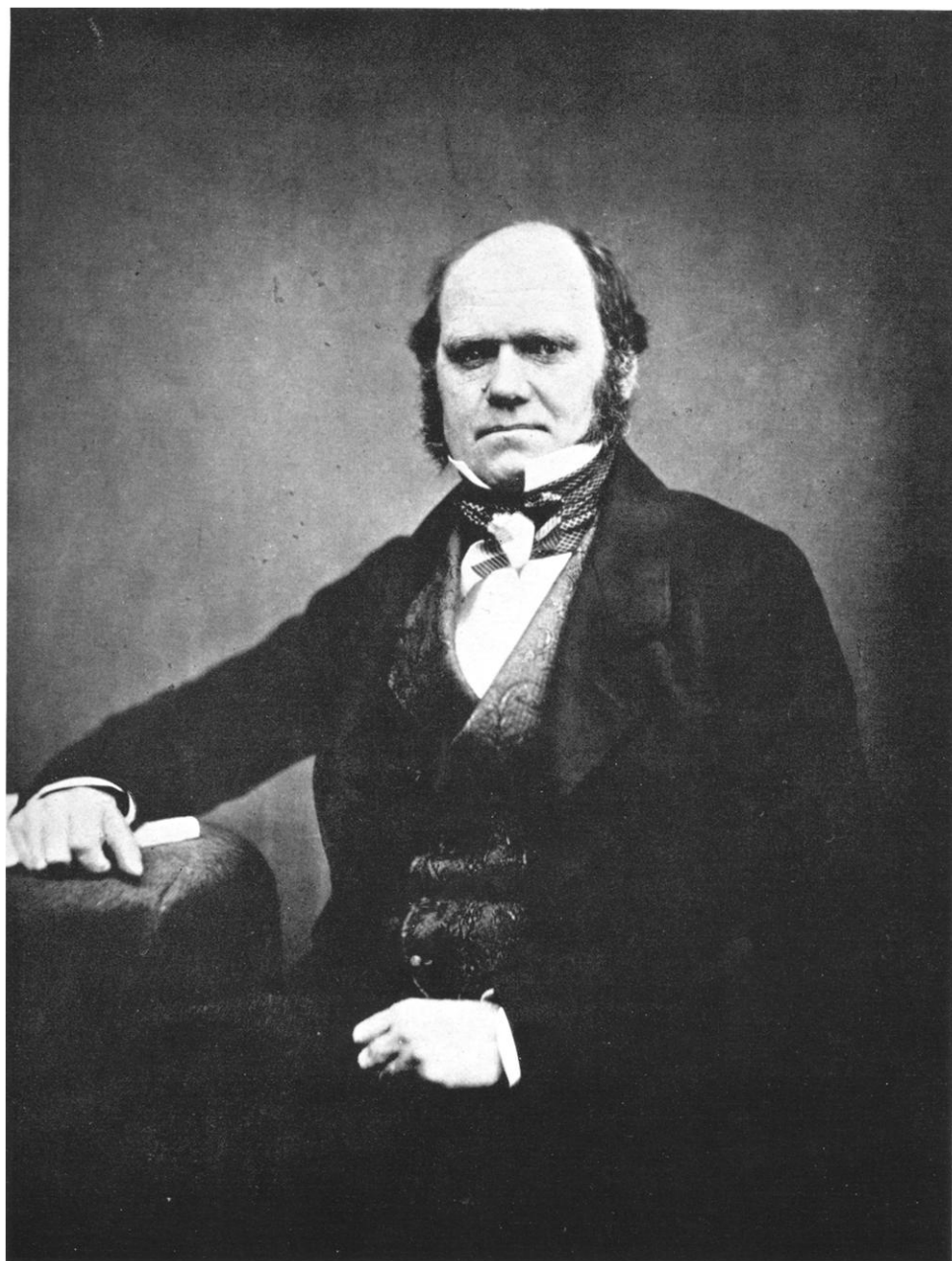
Edited by SIR GAVIN DE BEER, F.R.S.

[Plate 1]

FEW sources of information are so revealing about the life and character of a man as the letters he wrote, particularly when the range of persons to whom they were addressed is wide enough to include members of his own family, close friends, slight acquaintances, future enemies, rivals, his old attendants, and tradesmen. These are all represented in the small collection of letters from Charles Darwin that are included here. The number of his letters which have been published¹ must approach a thousand, and those which have since been found are numerous. The time is, however, not ripe for an attempt to compile an exhaustive edition of his correspondence; nor are the few that are printed here to be regarded as any attempt to embark on such a task. They have been chosen from among many because of their intrinsic interest in throwing light on a number of aspects of Darwin's life and work.

They are concerned with items relating to his own health (Letters 2, 3, 7, 10, 17, 21, 22, 24, 26, 27, 37), including the information that he did not expect to survive the winter of 1848-9; anxieties about his family and careers for his sons (3, 6, 8, 9); the possibility of his emigration (3); interest in his old shipmates in the *Beagle* (1, 2, 3, 4, 5, 6, 7, 8, 9); the progress of his own work on barnacles (2, 4, 7, 33), the *Origin of species* (7, 9), *Variation of animals and plants under domestication* (29), and the *Descent of Man* (16); the problem of intelligent design (18); the possibility of the origin of life from inorganic chemical compounds (41); his pride over his work on barnacles (33), and his acknowledgement of total failure over the Parallel Roads of Glen Roy (20); his reactions to criticisms of the *Origin of species* (18, 30, 34); his method for obtaining specimens (2, 12, 13, 14, 25) and the disposal of them (32); his requests for information on domestic and wild forms (12, 13, 14, 15), stripes on horses (15), transport of seeds on bird's feet (25, 26); the working of sexual selection in moths (39) and in man (16); his relations with an old attendant (1-10), and with a tradesman (42); his conscientiousness regarding testimonials (28), his attitude in the unexpected role of a member of Council of the Royal Society (38), and his estimate of his own career (19) prepared for publication.

Perhaps the most interesting of all are the two letters (35, 36) written on the same day to a man, Baden Powell, who must have made Darwin feel that



CHARLES DARWIN, F.R.S.
(From a photograph by Maull & Fox, 1854)

it was a pity that in the *Origin of species* he had not referred to previous doubters of the fixed nature and special creation of species. These letters show clearly that what Darwin claimed as his own personal, independent, and original contribution to science was the explanation of 'how species became modified', by the action of natural selection. As Professor Loren C. Eiseley has recently shown,² this subject is extremely complex. Unknown to Darwin at the time, two other men were afterwards found to have adumbrated the principle of natural selection and its application to the modification of species before him: W. C. Wells in 1813, and Patrick Matthew in 1831. On the other hand, there was Edward Blyth who between 1835 and 1837 published papers containing the principle of natural selection which, however, he used to support the argument that species do *not* change. As is well known, Alfred Russel Wallace, in 1858, hit upon Darwin's complete demonstration of how natural selection explains the modification of species, resulting in evolution. It remains true that nobody but Darwin gathered the evidence together to establish the theory of evolution by natural selection on more than a speculative basis.

One of the letters (41), so far as known, is the last which he dictated and signed before he died. It is all the more interesting from its contents which show that Darwin believed that the origin of life would be found to be subject to natural laws.

Sir Charles Darwin, K.B.E., F.R.S., in whom the copyright of the manuscripts and unpublished letters is vested, has very kindly approved their publication here. To Lady Barlow I am indebted for much help regarding dates and other information.

Two exceptions to the general policy here followed call for comment. The letters from Darwin to Syms Covington were published, but only in a weekly Australian newspaper, now defunct and seventy-five years ago. The inaccessibility of that publication is the justification for the inclusion of those letters here. Finally, all these letters are from Darwin, with the exception of one (22) signed by his wife as he was too ill to write, and one (23) addressed to him by Patrick Matthew who had anticipated Darwin in his application of the principle of natural selection. This letter shows that in spite of his priority Matthew could never have written the *Origin of species*.

In the published letters of Darwin, the address from which he wrote when he was at Down is simply given as 'Down'. In fact, however, as the autograph letters show, the address on the notepaper has interesting variations. From the time when he went to live at Down in 1842 until 1845 the address was Down, near Bromley, Kent; from 1845 until the early part of 1855

it was Down, Farnborough, Kent; from the latter part of 1855 until late in 1869 it was Down, Bromley, Kent; and from September 1869 onwards the address was Down, Beckenham, Kent. Occasionally there were exceptions to this sequence as in the case of Letter 5 dated Down, Bromley, Kent, 21 October 1853. He does not appear to have used notepaper with printed heading before 1862.

These variations in the postal address are of use in enabling an attribution of a rough date-bracket to be made to such letters as bear no year.

¹ The bibliography to Darwin's published letters is given in Appendix I.

² Loren C. Eiseley: *Darwin's Century* (London 1959); 'Charles Darwin and Edward Blyth', *Proc. Amer. Phil. Soc.*, **103**, 94 (1959).

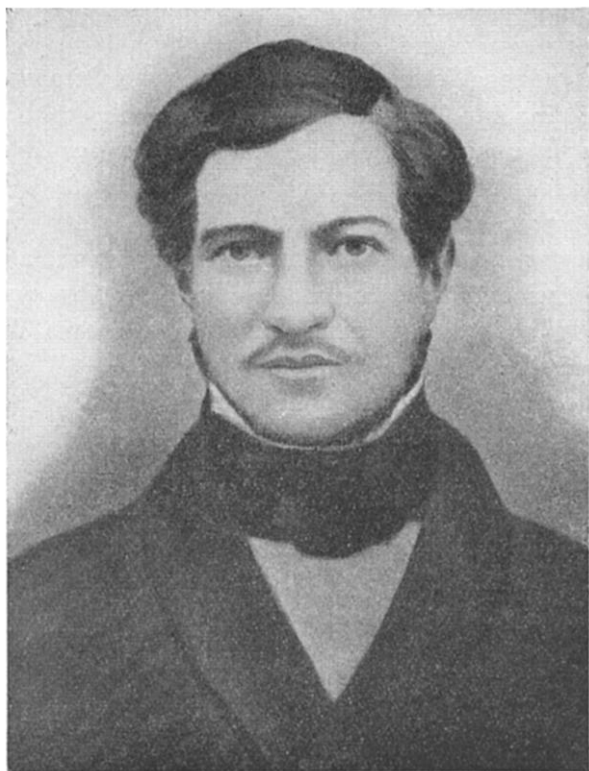
SYMS COVINGTON

Syms Covington (born c. 1816, died 17 February 1861) was 'Fidler and boy to Poop cabin' on the voyage of H.M.S. *Beagle* and became Darwin's attendant, and his clerk and amanuensis after returning to England. He settled afterwards in Australia and lived at Pambula, near Twofold Bay, New South Wales.

Science owes a debt to Syms Covington which it has not adequately recognized. In Darwin's letter¹ to his sister Catherine, 22 May 1833, he advanced reasons for incurring the expenditure of £60 a year on a personal attendant. Captain FitzRoy had appointed a seaman to be with him, but Darwin did not think it right on his part to take a seaman away from his normal duties on board ship. The project was approved by both Darwin's father and FitzRoy, and as the latter kept the man on the ship's books for victuals, the annual expenditure by Darwin was only £30 a year. The man was Covington whom Darwin had taught to shoot and to skin birds. On 6 July 1833 Darwin added:² 'I shall now make a fine collection in birds and quadrupeds, which before took up far too much time.' Here is the evidence that if it had not been for Covington's help, Darwin would not have been able to obtain as much material as he did: and as it was the similarity of some quadrupeds to extinct forms in South America, the substitution of some quadrupeds for others in different regions of the continent, and the diversity of birds in the various Galapagos Islands and their general similarity to the birds of the mainland, which provided Darwin with the chief material for starting the whole of his train of thought on evolution, there can be no doubt that Covington must have been of material help to Darwin.

At first, there does not seem to have been much sympathy between the

two men. On 20 July 1834 Darwin wrote³ to his sister Catherine about Covington: he 'is an odd sort of person: I do not very much like him: but he is perhaps from his very oddity, very well adapted to all my purposes.' The use of the word *adapted* in this connexion shows how Darwin's mind was already working, and it is pleasant to know from the correspondence printed here that a life-long bond of friendship arose between the two men.



SYMS COVINGTON

(From a photograph supplied by Miss Marjorie B. Sirl.)

Covington also acted as a clerk to copy notes for Darwin who kept him in his employment after the *Beagle's* return to England. At the beginning of January 1839, Covington helped Darwin to move into Gower Street from Great Marlborough Street where he had been living⁴. Covington's great-grand-daughter, Miss Marjorie B. Sirl of Bega, New South Wales, has very kindly sent me a transcription of Darwin's letter of reference in favour of

Covington:—‘He assisted me then as clerk & this has been his chief employment since that voyage. He writes an excellent hand, and understands something of accounts. In circumstances of difficulty he has always behaved with prudence. In the management of my affairs (and his own) he has invariably acted with economy. I have never once seen him in any way affected with spirituous liquor. I have constantly been in the habit of trusting him with both large and small sums of money, and have good reason to believe he is trustworthy to the highest degree.

12 Upper Gower Street, London May 29, 1839.

Charles Darwin’

In Darwin’s personal Journal⁵ under the date of 14 October 1842, just one month after settling into Down House, there is an entry to the effect that he had started on his manuscript of *Geological observations on the volcanic islands visited during the voyage of H.M.S. Beagle* (published in 1844) from the notes made by Covington.

Covington was also an artist, and his daughter possessed a number of his water colour pencil drawings. The house which Covington built at Pambula is of stone and still the most outstanding building in the town. The store which he built was likewise of stone and still standing.

The communication of the following letters is also due to the kindness and courtesy of Miss Sirl. Their texts are known and were copied from a weekly Sydney newspaper, *The Sydney Mail*, which has since ceased publication. They appeared in the issue of 9 August 1884, No. 1257, Vol. XXXVIII, pp. 254, 255; information kindly supplied by Mr. A. B. Walkom, Hon. Secretary of the Linnean Society of New South Wales.

¹ Barlow, Nora. *Charles Darwin and the voyage of the Beagle* (London, 1945) p. 85.

² Ibid., p. 88.

³ Ibid., 102.

⁴ H. E. Litchfield: *Emma Darwin* (p.p., Cambridge, 1904), I, p. 433.

⁵ Preserved in the Cambridge University Library. A transcription is now in course of publication in the Historical Series of the *Bulletin of the British Museum (Natural History)*. A Russian translation has been published by S. L. Sobol in his *Charles Darwin* (Moscow, 1957), p. 167.

(Letter 1)

[*Charles Darwin to Syms Covington*]¹

Down, near Bromley, Kent

October 7th 1843

N.B. This will be my direction for the rest of my life.

Dear Covington.

Your new ear trumpet has gone by the ship Sultana. It is enclosed in a box from Messrs Smith & Elder to their correspondent, Mr. Evans (I suppose,

bookseller). I was not able to get it sent sooner. You must accept it as a present from me.

I presume you will have to pay a trifle for carriage. I recommend you to take your old one to some skilful tinman, and by the aid of an internal plaster cast I have no doubt he could make them.

All that is required is an exact resemblance in form.

I should think it would answer for him to make one, & hang it up in his shop with an advertisement.

I was glad to get your last letter with so good an account of yourself, and that you had made a will. My health is better since I have lived in the country.

I have now three children. I am yet at work with the materials collected during the voyage. My coral-reef little book has been published for a year²—the subject on which you copied so much M.S. The Zoology of the voyage of the Beagle is also completed.³

I have lately heard that the Beagle has arrived safe & sound in the Thames,⁴ but I have heard no news of any of the Officers. Your friends at Shrewsbury often enquire after you. I forget whether I ever [told] you that Mrs. Evans⁵ is married & that my father has built them a nice little house to live in.

Captain Fitzroy⁶ you will have heard, is gone to New Zealand as Governor. I believe he intended to call at Sydney.

With best wishes for your prosperity, which is sure to follow you if you continue in your old, upright, prudent course.

Believe me, yours very faithfully

C. Darwin.

¹ Reprinted from *The Sydney Mail*, 9 Aug. 1884.

² *The structure and distribution of coral reefs* (London, 1842).

³ *The zoology of the voyage of the Beagle*, edited by Charles Darwin (London, 1839–43).

⁴ The *Beagle* had returned from her last surveying voyage under Captain J. L. Stokes. A brief account of the history of H.M.S. *Beagle* is given in Appendix II.

⁵ Mrs Evans, wife of Darwin's father's butler: an entry which shows that Covington was familiar with Shrewsbury.

⁶ On Robert FitzRoy see Appendix III.

(Letter 2)

[*Charles Darwin to Syms Covington*][†]

Down, Farnborough, Kent
March 30th 1849

Dear Covington,

It is now some years since I have heard from you, and I hope you will take the trouble to write me to tell me how you and your family are going on.

I should much like to hear that your worldly circumstances are in good position, and that you are every way fortunate.

I hope that your deafness has not increased. I will now tell you about myself. My poor dear Father, whom you will remember at Shrewsbury, died in his 84th year on the 13th November.

My health lately has been very bad, and I thought all this winter that I should not recover. I am now not at home (though I have so dated this letter) but I have come to Malvern for two months to try the cold water cure, and I have already received so much benefit that I really hope my health will be much renovated.

I have finished my three geological volumes on the voyage of the old Beagle,² and my journal, which you copied, has come out in a second edition,³ & has had a very large sale.

I am now employed on a large volume,⁴ describing the anatomy and all the species of barnacles from all over the world.

I do not know whether you live near the sea, but if so I should be very glad if you would collect me any that adhere (small & large) to the coast rocks or to shells or to corals thrown up by gales, & send them to me without cleaning out the animals, and taking care of the bases. You will remember that barnacles are conical little shells with a sort of four-valved lid on the top. There are others with long flexible footstalk fixed to floating objects, and sometimes cast on shore. I should be very glad of any specimen, but do not give yourself much trouble about them. If you do send me any, they had better be directed to the Geological Society Somerset House and a letter sent to inform me of them.

I shall not publish my book for 18 months more.

I have now six children three boys & three girls & all, thank God are well & strong. I have not seen any of our old officers for a long time. Captain Fitzroy has the command of a fine steamer frigate.

Captain Sullivan⁵ has gone out to settle for a few years & trade at the Falkland Islands, & taken his family with him. I know nothing of the others. You will remember Evans my Father's butler at Shrewsbury; he & his wife are both dead. I should like to hear what you think of the prospects of your country. How is Captain King?⁶ Should you see Mr. Philip King,⁷ please say that I desired to be most kindly remembered to him; I was grieved to hear some long time since that he was out of health. Has he any family? I often think how many pleasant walks I had with him. Speaking of walks, I fear my day is done, & I could never tire you again. I have not been able to walk a mile for some years, but now with the water cure I am getting stronger again.

With every hope that you are happy & prosperous, believe me dear
Covington

Your sincere well-wisher

C. Darwin.

¹ Reprinted from *The Sydney Mail*,
9 Aug. 1884.

² These works were:

- (i) *The structure and distribution of coral reefs*,
(London, 1842).
- (ii) *Geological observations on the volcanic
islands visited during the voyage of H.M.S.
Beagle* (London, 1844).
- (iii) *Geological observations on South America*
(London, 1846).

³ *Journal of researches into the natural history
and geology of the countries visited during the
journey round the World by H.M.S. Beagle*
(London, 1845).

⁴ *A monograph on the sub-class Cirripedia*
(London, 1851).

⁵ Bartholomew James Sullivan (1810-
1890), afterwards K.C.B. and Admiral;
Lieutenant in the *Beagle* with Darwin.

⁶ Philip Parker King (1793-1856), after-
wards Admiral; commanded H.M.S.
Adventure with which H.M.S. *Beagle* sailed
on her first voyage; settled in Australia
where his father Philip Gidley King (1758-
1808) had been the first Governor of New
South Wales.

⁷ Philip Gidley King, son of Captain
Philip Parker King, midshipman in the *Beagle*
with Darwin; became a Member of the
Legislative Council of New South Wales.

(Letter 3)

[Charles Darwin to Syms Covington]¹

Down, Farnborough, Kent

Nov. 23 1850

Dear Covington,

I received your letter of the 12th of March on the 25th of August, but the box of which you advised me arrived here only yesterday. The captain who brought it made no charge and it arrived quite safely. I thank you very sincerely for the great trouble which you must have taken in collecting so many specimens. I have received a vast number of collections from different places but never one so rich from one locality. One of the kinds is most curious. It is a new species² of a genus of which only one specimen is known to exist in the world, and it is in the British Museum.

I see that you are one of those very rare few who will work as hard for a friend when several thousand miles apart as when close at hand. There are at least 7 different kinds in the box. The collection must have cost you much time and labour, and I again thank you very sincerely for so kindly obliging me.³ I have been amused by looking over two old papers you used in packing up, and in seeing the names of Captain Wickham,⁴ Mr. Maclean⁵ and others mentioned. I am always much interested by your letters, and take a very sincere pleasure in hearing how you get on. You have an immense, incalculable advantage in living in a country in which your children are sure to get on if industrious.

I assure [you] that, though I am a rich man, when I think of the future, I very often ardently wish I was settled in one of our colonies, for I have now four sons (seven children in all and more coming) and what on earth to bring them up to I do not know.

A young man may here slave for years in any profession and not make a penny. Many people think that Californian gold will half ruin all those who live on the interest of accumulated gold or capital, and if that does happen I will certainly emigrate.⁶ Whenever you write again tell me how far you think a gentleman with capital would get on in New South Wales. I have heard that gentlemen generally get on badly. I am sorry to say that my health keeps indifferent, and I have given up all hopes of ever being a strong man again.

I am forced to live the life of a hermit, but natural history fills up my time, and I am happy in having an excellent wife and children.

Any particulars you choose to tell me about yourself always interest me very much. What interest can you get for money in a safe investment? How dear is food. I suppose nearly as dear as in England?

How much land have you? I was pleased to see the other day that you have a railway commenced, and before they have one in Italy or Turkey. The English certainly are a noble race,⁷ and a grand thing it is that we have got securely hold of Australia and New Zealand. Once again accept my thanks for your valuable collection of barnacles, and believe me, dear Covington

Your sincere friend

C. Darwin.

¹ Reprinted from *The Sydney Mail*, 9 Aug. 1884.

² *Catophragmus polymerus*, habitat Twofold Bay (A *Monograph on the sub-class Cirripedia—the Balanidae* (London, 1854).

³ At the monthly meeting of the Linnean Society of New South Wales held on 30 July 1902, 'Mr. Covington Junior remembers when a boy helping his father collect Barnacles for transmission to the author of "Monograph on the Sub Class Cirripedia", and the Australian specimens from Twofold Bay in the second volume of the work were described from this source.'

⁴ John Clement Wickham was 1st Lieutenant in the *Beagle* with Darwin; he commanded the *Beagle* on her third voyage in 1838 and surveyed the coast of Australia; afterwards Governor of Queensland.

⁵ Sir Donald Maclean (1820-1877) was living in Sydney before going to New

Zealand where he served in the Legislature as Minister.

⁶ The two sources of anxiety here described, and an additional one, were referred to in a letter from Darwin to William Darwin Fox, 7 March 1852: 'my three bug-bears are Californian and Australian gold, begging me by making my money on mortgage worthless; the French coming by the Westerham and Sevenoaks roads, and therefore enclosing Down; and thirdly, professions for my boys.' (*L. & L.*, I, 381).

⁷ The consideration which weighed so heavily with Darwin was given in his *Diary* (p. 375) for 12 January 1836 on arrival at Sydney: 'It is a most magnificent testimony to the power of the British nation: here in a less promising country, scores of years have effected many times more than centuries in South America.'

(Letter 4)

[Charles Darwin to Syms Covington]¹

Down, Farnborough, Kent

March 14, 1852

Dear Covington,

I was very much pleased a couple of months ago to receive your very interesting letter of June, 1851, with an account just such as I liked to hear of your present state and prospects and of the general condition of the Colony. You mention in your letter the discovery of gold, but since then you have had the wonderful Geelong beds discovered. Have you carried your plan into execution of going to trade at the gold mines? If you have and are returned and could spare an evening, it would amuse me much to hear what you saw there and how the people behave. Many people are proud in England at hearing that you Australians have behaved wonderfully better than the Californians. Is this so? or is all the world alike when tempted by gold? I had a note two days ago from your brother, Mr. B. Covington of '28, Harding-street, Windsor, Liverpool,' saying that he was very anxious to hear news of you; so as there was nothing in your letter to me which you could have disliked any one seeing I sent it to him. My life pursuits are so uniform that I have really no news to tell you of myself. I have published one book on Barnacles,² and am going to publish a second volume, and quite lately I have been examining some of the specimens you sent me, and very useful, and interesting they proved. My health keeps indifferent. The only officer of the Beagle that I have seen for several years is Captain Sullivan, who paid me a visit on his return lately from the Falkland Islands, where he and three other gentlemen have set up a large cattle farm, and hope it will answer very well. With my best wishes for your prosperity and happiness, believe me your friend,

Charles Darwin.

¹ Reprinted from *The Sydney Mail*, 9 Aug. 1884.

² *A monograph on the sub-class Cirripedia—the Lepadidae* (London, 1851).

(Letter 5)

[Charles Darwin to Syms Covington]¹

Down, Bromley, Kent

October 21, 1853

Dear Covington,

I received your letter dated May 25, '53, at Pambula, here at Down on Oct. 11, which I think is very quick. I thank you sincerely for writing, as I

had for some time been thinking how you were getting on. From what we see in the papers, most of us in England have got an awful idea of the state of things at the diggings. Your account of the way the Sunday was kept near the Ovens was very pleasant to hear. On the spot you must, of course, judge best, but I should have liked to have heard of your turning up a fine nugget worth some hundred pounds, and that would have repaid you for your long journey, which I traced by your letter on the map. Well, I daresay it was almost worth your while once to have seen the diggings, for it must be a curious spectacle. I should like very much at some future time to hear how you get on, and whether the mining has done you and other residents near Twofold Bay good or harm. About half a year ago I had Mr Septimus Martin, the son of the rector of the adjoining parish, dining with us; he has now gone back to Melbourne, and is married. He had formerly been at Twofold Bay, and told me a little about it. I feel a great interest about Australia, and read every book I can get hold of. I lately read a long one by Colonel Munday.² I really have no news to tell you of myself; we live a most quiet life. I have not yet finished my second volume on the Barnacles, but hope soon to do so, and begin some other subject. I saw a few weeks ago Captain Fitz Roy; perhaps you heard that a year or two ago he had the great misfortune of losing his wife. I am afraid he lost much money by his government of New Zealand. I saw also Captain Sullivan, who has now half-a-dozen children. Lastly, the only other officer I heard of, Mellersh,³ has greatly distinguished himself by hard fighting with some Chinese Pirates. We are all much afraid of war with Russia, which pray God, may be prevented. You might like to hear that two or three years ago Fuegia⁴ was heard of by a sealer in the west part of the Straits of Magellan. She could still speak some English. With every good wish for yourself and family, pray believe me your faithful friend,

C. Darwin.

¹ Reprinted from *The Sydney Mail*, 9 Aug. 1884.

² Mundy, Godfrey C. *Our antipodes; or residence and rambles in the Australian gold fields* (London, 1852).

³ Arthur Mellersh, midshipman in the *Beagle* with Darwin; afterwards Admiral.

⁴ On Fuegia, see Appendix IV.

(Letter 6)

[*Charles Darwin to Syms Covington*]¹

Down, Farnborough, Kent
February 28, 1855

Dear Covington,

I was very glad to get your letter about six weeks ago, dated August 8, 1854, with so good an account of yourself, your affairs, and your children.

You have exactly the same family which we have—five boys and two girls; but you beat me in being able to say that yours are all strong and healthy, which is hardly the case with mine, though none have anything serious amiss with them. How little you thought when we landed together at Sydney, that you should one day have land and house letting for £83 per annum. I am very glad to hear that the Colony is progressing so well, and that, as you say, ‘our good Queen has no more loyal subjects in her dominion than are the Australians.’ I have lately seen and heard news, more especially of the gold district, from a Mr. Mackenzie,² who was a schoolmaster at Sydney and afterwards a surveyor, has made a nice fortune, and his wife dying there, he has come back with his one daughter to end his days here, and has published a little book describing Australia. But he seemed to regret Australia. I am sure this last winter, with six weeks frost, and with the thermometer sometimes at 0., is enough to make anyone past boyhood wish to be in a warmer and better climate. We were during this time in London, for we took a house for a month to have a little amusement, but the weather was cold and the streets all so dirty and snowy that it looked very dismal. The Thames was nearly quite frozen over. I have heard nothing of late of our old shipmates. Captain Fitz Roy is head of a department for keeping an account of observations on wind, weather, and currents made all over the world. He is married again, but I have not seen his wife. Captain Sullivan acquired much credit in the Baltic, and he has now commissioned another small ship, and will sail again soon for the Baltic, and I shall go and see him before he sails. He has now six or seven children. Captain Stokes³ is in England. I saw him some months ago. I hear he does little now but shoot and hunt. There has been terrible dissatisfaction in England about the management of the war, which seems to have been very badly conducted; but the men and officers have behaved most nobly, and have made the name of Englishmen a prouder thing than ever. Let me hear again from you. To what shall you bring up your boys? I wish to God I knew what to do with mine.—Believe me, with every good wish, your friend,

C. Darwin.

¹ Reprinted from *The Sydney Mail*, 9 Aug. 1884.

² Either: Encas Mackenzie, author of *Mackenzie's Australian emigrants' guide* (London, 1852); or Rev. David Mackenzie,

author of *Ten years in Australia* (London, 1851); and *The Gold-digger: a visit to the gold-fields of Australia in February 1852* (London, 1853).

³ On Captain Stokes see Appendix V.

[*Charles Darwin to Syms Covington*]¹

Down, Bromley, Kent

March 9, '56

Dear Covington,

I was very glad to get a month or six weeks ago your letter of the 4th of September, with its interesting account of the state of the Colony and your own affairs, which I am most truly glad are so prosperous. You did a wise thing when you became a colonist. What a much better prospect you have for your sons, bringing them up as farmers—the happiest and most independent career a man can almost have—compared to what they could have been in this old burthened country, with every soul struggling for subsistence. I have lately been talking a good deal on this subject with Captain Sullivan, who has four boys, and who often seems half-inclined to start for some colony and make his boys farmers. Captain Sullivan, owing to all his practice in the old *Beagle* (I have heard that our old ship is now a collier),² was the right hand of the fleet in the Baltic, and had all the difficult work to do in placing the ships in the bombardment of Sweabourg.³ I heard of a letter from a seaman in the fleet, but not in Captain Sullivan's ship, who said he was the best sailor in the whole lot, and that if the men could elect their Admiral they would elect him. Captain Stokes is married again, to a widow and will never, I believe, go afloat again.

I have finished my book on the barnacles⁴ (in which you so kindly helped me with the valuable Australian specimens). I found out much new and curious about them, and the Royal Soc. gave me their great gold medal (quite a nugget, for it weighs 40 sovereigns), chiefly for my discoveries in regard to these shells, which are not perfect shells, but more allied to crabs.

My health is better, but I have a few bad days almost every fortnight, and cannot walk far or do any hard work. I am now employed on a work on the variation of species,⁵ and for this purpose am studying all about our domestic animals and am keeping alive all kinds of domestic pigeons, poultry, ducks. Have you ever noticed any odd breeds of poultry, or pigeon, or duck, imported from China, or Indian, or Pacific Islands? If so, you could not make me a more valuable present than a skin of such. But this, I know, is not at all likely.

My children, thank God, are all well, and one gets, as one grows older, to care more for them than for anything in this world. With every good wish for the health and happiness of your self and family, believe me, dear Covington, yours sincerely

Charles Darwin.

¹ Reprinted from *The Sydney Mail*, 9 Aug. 1884.

² Darwin's information that the *Beagle* was used as a collier may have been based on the fact that at that time she was employed on static duties at Southend, and that some such ships were used as coal-hulks. A brief account of her history is given in Appendix II.

³ Sveaborg.

⁴ *A monograph on the sub-class Cirripedia—the Balanidae* (London, 1854).

⁵ This is the large work of which the *Origin of species* was an 'abstract'. It is being transcribed and prepared for publication by Professor Robert C. Stauffer.

(Letter 8)

[*Charles Darwin to Syms Covington*]¹

Down, Bromley, Kent
February 22, 1857

Dear Covington,

I received a short time since your letter of September 14, and was glad to hear how you are getting on, though the account of your affairs was not quite so prosperous as in some former letters, owing, as I understood, chiefly to the expense of your new house. But with your good sense and steadiness I have great hopes that you will ride over the time of difficulty. You must console yourself with thinking what a position you would be in here with six boys and two girls (which is now exactly my number). I never meet any one who is not perplexed what to do with their children. My eldest boy² is almost a young man, and has just got into the head form at the great school of Rugby, and is very steady and good. We think of making him a Barrister, though it is a bad trade.

Captain Sullivan has been very lucky and has got a high place, of £1,000 a year, I believe, and has beaten two Admirals and Captain Fitz Roy, who tried for the same place.³ By the way Captain F. with Mrs. F. are coming to lunch with me on their road home from the Marquis of Camden. Poor Captain F. has lately lost his only daughter, a beautiful and charming girl of about 16 or 17 years old.

I lately dined with one of your great Australian potentates, Sir W. Macarthur,⁴ and heard a great deal of news of Australia, and drank some admirable Australian wine. Yours is a fine country, and your children will see it a very great one. With every good wish for your health and prosperity, I am, dear Covington, yours sincerely

Ch. Darwin.

¹ Reprinted from *The Sydney Mail*, 9 Aug. 1884.

² William Erasmus Darwin (1839-1914).

³ The post of Naval Officer of the Marine Department of the Board of Trade.

⁴ Sir William MacArthur (1800-1882), Member of the Legislative Council of New South Wales.

(Letter 9)

[Charles Darwin to Syms Covington]¹Down, Bromley, Kent
May 18 [1858]

Dear Covington,

I was glad to get some time ago your letter of the 19th August, and I should have answered some time ago, but my health has been very indifferent of late, owing to my working too hard. I have for some years been preparing a work² for publication which I commenced 20 years ago, and for which I sometimes find extracts in your handwriting! This work will be my biggest; it treats on the origin of varieties of our domestic animals and plants, and on the origin of species in a state of nature. I have to discuss every branch of natural history, and the work is beyond my strength and tries me sorely. I have just returned from staying a fortnight at a water-cure establishment,³ where I bathe thrice a day, and loiter about all day long doing nothing, and for the time it does me wonderful good. I suppose you have no such thing as water-cure establishments in Australia; in your fine climate and much out-of-door work such is not required, I suppose.

You say you have eight children; we beat you by one. My eldest is between 18 and 19 and is going to Cambridge in October to be educated as a Barrister, for want of a better and honester trade. I hope Pambula flourishes; in your last letter you express some fear about the road being turned and trade being thus injured; I hope that this has not happened. I have not seen a soul of an old shipmate, except Captain Fitz Roy, for the last year. Captain Sullivan lately had the misfortune to lose a child. When you feel inclined I shall be always glad to hear of your progress and well-doing, and with every good wish, I remain, yours very faithfully,

Ch. Darwin.

¹ Reprinted from *The Sydney Mail*, 9 Aug. 1884.

² Darwin was still engaged on his large work. Wallace's letter which precipitated

his writing of the *Origin of species* was received by him one month later on 18 June 1858.

³ Moor Park in Surrey.

(Letter 10)

[Charles Darwin to Syms Covington]¹Down, Bromley, Kent
January 16, 1859

Dear Covington,

I have got the little book for you, but I have only this minute discovered (for the seal tore by an odd chance at the exact spot) that you asked me to get

two copies. But I really think that it would be superfluous . . . As to the Aurist, you may rely on it that the man is an advertising humbug. I know plenty of people and have one relation, very deaf, and every one in London would know about this man's power of curing if true. You may depend on it that besides syringing in certain cases there is little or nothing to be done. My father, who was a very wise man, said he had known numbers who had been much injured by Aurists, and none who had been benefited. A common good surgeon can do all that these humbugs can do. I am very sorry to hear about your deafness increasing, it is a very great misfortune for you, but I fear you must look at it as incurable. I am glad to hear that you are doing pretty well; and if you can settle your sons in an agricultural line they will have no cause to complain, for no life can be more healthy or happy. We have had an unhappy summer, my eldest girl² having been very ill with diphtheria, a new and very fatal throat complaint, and my youngest baby boy³ having died at the same time of scarlet fever. My second daughter⁴ is also very delicate. After our misery we went to Isle of Wight for six weeks for a change. My health keeps very poor, and I never know 24 hours' comfort. I force myself to try and bear this as incurable misfortune. We all have our unhappinesses, only some are worse than others. And you have a heavy one in your deafness.

With every good wish for the prosperity of yourself and family, believe me, dear Covington, yours very sincerely,

Ch. Darwin.

¹ Reprinted from *The Sydney Mail*, 9 Aug. 1884.

³ Charles Waring Darwin (1856-58).

² Henrietta Emma Darwin, afterwards Mrs. Litchfield (1843-1929).

⁴ Elizabeth Darwin (1847-1925).

GEORGE DARWIN

Darwin's letter to his second son George (1845-1912) relates to an event which can be recognized in a letter¹ dated Cambridge 17 November 1877 from Cecil Torr to his father;— 'I saw Darwin made a Doctor in the Senate House today. Huxley and Tyndall and the rest of them were there; and there were two stuffed monkeys—one with a musical box inside it—suspended from the galleries by cords and dangled over Darwin's head.'

The ceremony was also described by Mrs. Darwin.²

¹ Torr, C. *Small talk at Wreyland* (Cambridge, 1925), p. 98.

² Litchfield, H. E. *Emma Darwin*

(privately printed, Cambridge, 1904) 2, 285; where the date of her letter should read 'Sunday 18 November'.

(Letter 11)

[Charles Darwin to George Darwin]¹

Down, Beckenham, Kent

May 30th [1877]

My dear George,

I have not yet received any letter, but when I do I will answer according to your advice. As October is so far off, I can endure the thoughts of coming up & being hooted at, or cheered, but whether my courage will be up to the mark hereafter is another question.

Ever your affect^{te} Father

Ch. Darwin.

¹ British Museum (Natural History)
General Library Autograph Collection.

LAURENCE EDMONDSTON

In Dr Laurence Edmondston (1795-1879) Darwin must have found a most congenial correspondent. Living in the northern-most Shetlands, he was not only a keen naturalist who had made numerous additions to the list of British birds and improved the culture of crops in the islands, but as an inhabitant of such islands he was a repository of exactly the sort of information that Darwin required. He is quoted with eulogy in *Variation of animals and plants under domestication* (2, 302).

An additional bond of sentiment united the two men, because Edmondston's eldest son Thomas (1825-1846) who served as naturalist on board the *Herald* which sailed in 1845 and visited the Galapagos Islands, was accidentally shot dead by the discharge of a rifle.

Attention to these letters was kindly drawn by the Rt. Hon. Lord Hurcomb, G.C.B., whose friend Colonel Laurence D. Edmondston, grandson of Darwin's correspondent, has very courteously allowed them to be printed here.

(Letter 12)

[Charles Darwin to Laurence Edmondston]¹

Down, Bromley, Kent

May 3rd [1856]

Dear Sir,

I beg to thank you truly for your kind & very interesting answer to my queries. The fact, which you communicate to me of a cock Rock Pigeon, having come to your Dove Cot & paired with a domestic bird is of value to me. I had fancied from the several statements in poor Mr. Macgillivray's²

work vol. I, p. 278 etc., that the taming of the Rock Dove was a much commoner event than it appears to be. Mr. James Barclay³ certainly seems to believe that they have paired & bred in domestication. If you should ever hear of any cases, I sh^d be extremely much obliged if you would kindly take the trouble to inform me. I am making a collection of skeletons of all the domestic kinds of Pigeons, but I have failed in getting a *real wild adult* Rock Dove. Should you think me very unreasonable to beg you to do me the great favour to send one, in strong paper, or light box per post: but I ask this on one condition that you will permit me to return you the 3s. or 4s. worth of stamps. This would be a *real assistance* for I would skin it & keep the skin with wing & leg on one side, & make skeleton of the rest. To make the favour quite perfect, I sh^d like just the head of a second specimen, as I cannot make skeleton & skin of that part from one specimen. But I much fear that you will think me exorbitant in my requests & that I trespass on your *very kind* offer of assistance.

I thank you for the information in regard to the drifted trees,⁴ it adds one more archipelago to my list. If any fact should ever occur to you in regard *even to any very slight variation or difference or habits* in regard to any of the domesticated animals of the Shetland Isl^s I sh^d be most grateful for the information. I sh^d very much like to hear whether the bones of any large quadrupeds have ever been found *deep* in the peat of the Shetlands; for I suppose peat is dug. You ask about myself; I have devoted my whole life to do what little I could for our favourite pursuit of Natural History & I volunteered my services on board H.M.S. Beagle in her circumnavigation, & did my best during our long voyage of five years, & published an account of it.

With my cordial thanks, pray believe me, my dear Sir,

Your truly obliged

Ch. Darwin.

¹ Ms. in the possession of Colonel Laurence D. Edmondston.

² William Macgillivray (1796-1852), author of *A handbook of British birds*. (In volume 1, p. 278, there is a story about the

taming of the Rock Dove.) Darwin called him 'the accurate Macgillivray'.

³ James Barclay. *cf. Variation of animals and plants* . . . I, 185.

⁴ On Drift-timber *cf. Origin of species* (*World's Classics* edition, p. 426).

(Letter 13)

[Charles Darwin to Laurence Edmondston]¹

Down, Bromley, Kent
 Sept. 11th
 [1856]

My dear Sir,

I have lately been drawing up descriptions of Pigeons,² and you can have no idea how valuable I have found the Shetland specimens. But there were some points which I omitted to examine, for instance the eye-lid, which I find in the Barb twice as long as in some other breeds. Again the exact shape of crop I neglected to observe. You will guess that this is a preface to beg you once again if you will be so very kind, as to send me per post (allowing me to pay postage) a wild Rock: though it would be best in early winter as keeping better, and the bird would be more sure to be adult. Will you be so kind as thus far to aid me? Have you succeeded in finding out about the attempt at domestication mentioned by Mr. Macgillivray? Are the wild birds ever chequered with black on their wing coverts? I am interested in this for I find that in India, Madeira and the Gambia the quite or half-wild all present this strange variation in plumage.

Is the Rabbit wild in the Shetlands? I have just lately been comparing my collection of skeletons of domestic & wild Rabbits, & I have been very much surprised to find how much some important points vary, as shape of foramen ovale, of the Atlas vertebra etc. etc. A Shetland specimen put in a jar with lots of salt w^d be a treasure to me; the more so to compare with a specimen I have received from the little isle of P. Santo.³ I presume such would be sent by ship to London or some port? That is if in your power to oblige me. The Rabbit beyond everything should not be killed by blow on head.

I fear that you will think that you have fallen on a most troublesome petitioner. I was not aware till I received your letter some two months ago, that you were the father of the Naturalist, whose fate, I assure you, I most sincerely deplored at the time. I can well believe, for I am a father, how this loss must have dampened all your zeal for Natural History.

Pray believe me with sincere respect

Dear Sir, your truly obliged

Ch. Darwin.

¹ Ms. in the possession of Colonel Laurence D. Edmondston.

² cf. Darwin's letter to William Darwin Fox, 19 March 1855, *L. & L.*, 2, 46; *Origin*

of species, chapter 1; *Variation of animals and plants under domestication*, chapter 5.

³ cf. *Variation of animals and plants . . .*, I, 113.

(Letter 14)

[Charles Darwin to Laurence Edmondston]¹

Down, Bromley, Kent

April 19th 1857

My dear Sir,

I ought to have written sooner to have thanked you for the very fine pigeons received per post, a few days ago; but as there was a scrap inside saying that you intended writing, so I delayed, but I will delay no longer thanking you cordially for all the very kind trouble which you have taken to oblige me. The specimen was very fine & very valuable to me, for there were several little points, which I had omitted to observe in the former specimen. I shall certainly not want to trouble for any other specimen of Pigeon. I see you most kindly note that the Rabbit is not forgotten. I sh^d be very glad to know whether there is any tradition of the introduction of the Rabbit. If you ever have any information on the domestication of wild Rock Pigeons in the Shetland Is^d I sh^d be very glad to hear. Likewise whether birds chequered with black marks all over wing coverts and back are ever met with in wild state. Graba² states that this is the case in Faroe and Col. King³ near Hythe has stock of Dovecots which he informs me are all descended from *wild* young procured in the Hebrides, & these are all chequered; but he cannot remember whether they were so at first now more than 20 years ago.

With my very sincere thanks for all your kindness, I remain, my dear Sir,

Yours sincerely,

Ch. Darwin.

¹ Ms. in the possession of Colonel Laurence D. Edmondston.

einer reise nach Färö im Jahre 1828 (Hamburg, 1830), p. 62.

² Graba, Carl Julian. *Tagebuch geführt auf*

³ cf. *Variation of animals and plants . . .*, I, 184.

(Letter 15)

[Charles Darwin to Laurence Edmondston]¹

Down, Bromley, Kent

Aug. 2nd 1857

My dear Sir

I am very much obliged for your letter of the 23rd, & for your information on the wild Pigeon, which is of much value to me. I enclose the stamps for the Rabbit, for which I heartily thank you, as it will prove extremely interesting in comparison with some other insular individuals. You are so kind as to offer to take the great trouble of sending me some young Rock Pigeons: if I could have had them 10 years ago, they w^d have been worth their weight in

gold to me, but now, I think, I could have hardly any chance of breeding them for a sufficient number of generations to make it worth while to have them; though this does not make it the less kind of your offering to send them.

About a month ago I wished extremely to ask you a question but I refrained solely because I thought I had already trespassed to a *quite* unreasonable degree on your kindness; but as you offer with so much good nature to assist me further, I will ask you my question, as I do not think it can cost very much trouble, & it is a point on which I have vainly sought for information. In most parts of N. Europe small horses or ponys are common (eel backs) of a Dun² or Mouse-colour. Do such occur in the Shetlands? These duns generally (perhaps always?) have a black stripe along the spine, & sometimes (as I have seen) transverse dark zebra-like marks on the legs, & I have been assured on perfect authority a transverse shoulder stripe like that of the Ass. Now any information on ponys of this colour w^d be of *extreme* interest to me, as it is a most widely geographically extended & ancient breed. Is the spinal stripe universal with the duns? Have you *ever* seen the shoulder asinine stripes? Are the transverse leg marks common? But *especially* I want to know whether these marks, when they occur, are plainer on the very young foal before the first hair is shed. And more than all I want to know whether the Dun or Mouse-colour ever appears when neither parent is dun, and *as far as known*, no ancestor has been of this colour; though this must always be very doubtful. Is the Dun (with spinal stripe & occasional other stripes) a very hereditary colour, i.e. will *one* parent of this colour generally transmit it when two horses of different colours, one being dun, are crossed? When dun & other colours are mixed which colour results? I have written to Norway to beg for information; & if you can give me any (& coming from you it will be reliable) it will in truth be of extreme use to me. Something analogous occurs in cream & roan & chestnut horses; though in the two latter colours I have heard (& seen) only the spinal stripe.

I do not know whether these colours ever appear in the Shetland herds. I can trust only to your great kindness so often shown to me, to forgive this long note, & I beg to remain, my dear Sir,

Yours sincerely,

Ch. Darwin.

Anything about the stripes on chestnuts interests me almost as much as in Duns.

¹ Ms. in the possession of Colonel Laurence D. Edmondston.

² On stripes in dun-coloured horses cf. *Origin of species* (*World's Classics* edition, p. 167).

DAVID FORBES

David Forbes (1828-1876) had travelled through Bolivia and Peru in the years 1857 to 1860, and came into contact with many Indian native tribes. The information for which Darwin asked in the following letter was required for his *Descent of Man*, the book which he decided to write, as he told¹ De Candolle, to amuse himself because he was so exhausted by the *Variation of animals and plants under domestication* which had recently been published. It will be noticed that Darwin states that he had adopted the technique of circularizing queries all over the world. The address on the letter is that of his sister-in-law Elizabeth Wedgwood with whom he and his wife were staying.

The inclusion of this letter is due to the kindness and courtesy of academician E. N. Pavlovsky who presented a photograph of the original in the Pushkin Library, Moscow.

¹ Baehni, Charles. 'Correspondance de Charles Darwin et d'Alphonse de Candolle'. *Gesnerus*, 12, 127 (1955).

(Letter 16)

[*Charles Darwin to David Forbes*]¹

4 Chester Place²
N.W.

Friday [March, 1868]

My dear M^r Forbes

Before leaving you I forgot to remind you that any notes on the idea of human beauty by natives who have associated little with Europeans would be very interesting to me. Also if by any strange chance you should have observed any facts leading you to believe that the women of savage tribes have some influence in determining which man shall steal them or buy them or run away with them I should like much to hear such facts.³

I have lately been sending the enclosed queries to all parts of the world and I send a copy to you, although I well know that it is a most improbable chance that you should have recorded in your notebooks any remarks on the subject.

I enjoyed my conversation with you very much & was astonished at the number of points to which you have attended.

Believe me, yours very sincerely

Ch. Darwin.

¹ Pushkin Library, Moscow, 137, 1, No. 35.

² 4 Chester Place was the home of Elizabeth Wedgwood, Darwin's sister-in-law who afterwards settled in Downe village.

In March 1868 Darwin and his wife spent a month at Chester Place, and this together with the questions on sexual selection dates this letter.

³ cf. *Descent of Man*, 2, 348.

SIR JOHN HERSCHEL

In his *Autobiography* Darwin acknowledged that Sir John Herschel (1792-1871) through his *Introduction to the study of Natural Philosophy* was one of the chief agents in stimulating him to 'a burning zeal to add even the most humble contribution to the noble structure of Natural Science'. He called on him at the Cape of Good Hope and afterwards in London. The following letters are preserved in the Archives of the Royal Society.

(Letter 17)

[*Charles Darwin to Sir John Herschel*]¹

The Lodge, Malvern, 13 June [1849]

My dear Sir

I thank you cordially for your extremely kind note & for all the trouble & precautions which you have taken & which are almost more than the occasion deserves. I have, also, had a very obliging note from Mr. Murray, written I think, before even he had heard from you, so that all will be made quite right & very much obliged I am to you. I hope that the volume² may bring forth some good fruit & so repay you for your trouble in superintending it.

I have been here for three months under Dr Gully³ & the Cold Water Cure, which has had an astonishing renovating action on my health; before coming here I was almost quite broken down, head swimming, hands trembling & never a week without violent vomiting, all this is gone, & I can now walk between two & three miles. Physiologically it is most curious how the violent excitement of the skin produced by simple water, has acted on all my internal organs. I mention all this out of gratitude to a process which I thought quackery a year since, but which now I most deeply lament I had not heard of some years ago. Excuse this medical dissertation, & believe me dear Sir John Herschel, with much respect,

Your sincerely obliged

C. Darwin.

¹ Roy. Soc. Mss. HS. 6. 16.

² *A manual of scientific enquiry, prepared for the use of Her Majesty's Navy, and adapted for travellers in general*, edited by Herschel and

published in 1849, to which Darwin contributed Section VI—Geology.

³ James Manby Gully (1808-1883), author of *The water cure in chronic diseases* (London, 1846).

[*Charles Darwin to Sir John Herschel*]¹

Down, Bromley, Kent
23 May [1861]

Dear Sir John Herschel,

You must permit me to have the pleasure to thank you for your kind present of your *Physical Geography*. I feel honoured by your gift, & shall prize this book with your autograph. I am pleased with your note on my book on species, though apparently you go but a little way with me.² The point which you raise on intelligent Design has perplexed me beyond measure; & has been ably discussed by Prof. Asa Gray, with whom I have had much correspondence on the subject. I am in a complete jumble on the point. One cannot look at this Universe with all living productions & man without believing that all has been intelligently designed; yet when I look to each individual organism, I can see no evidence of this.³ For, I am not prepared to admit that God designed the feathers in the tail of the rock-pigeon to vary in a highly peculiar manner in order that man might select such variations & make a Fan-tail;⁴ & if this be not admitted (I know it would be admitted by many persons) then I cannot see design in the variations of structure in animals in a state of nature, those variations which were useful to the animal being preserved & those useless or injurious being destroyed. But I ought to apologise for thus troubling you. You will think me very conceited when I say I feel quite easy about the ultimate success of my views, (with much error, as yet unseen by me, to be no doubt eliminated); & I feel this confidence because I find so many young & middle-aged truly good workers in different branches, either partially or wholly accepting my views, because they find that they can thus group & understand many scattered facts. This has occurred with those who have chiefly or almost exclusively studied morphology, geographical distribution, systematic Botany, simple geology & palaeontology. Forgive me boasting, if you can; I do so because I sh^d value your partial acquies[c]ence in my views, more than that of almost any other human being.

Believe me with much respect,

Yours sincerely & obliged

Charles Darwin.

¹ Roy Soc. Mss. HS. 6. 17.

² Herschel had criticised natural selection as 'the law of higgeldy-piggeldy' (*L. & L.*, 2, 241) to which he preferred a law of 'Provi-dential Arrangement'.

³ cf. Darwin to Hooker 12 July 1870 (*M.L.*, I, 321).

⁴ This same argument was used in a letter from Darwin to Lyell, 2 August 1861 (*M.L.*, I, 191).

ROBERT HUNT

The interest of Darwin's letter to Robert Hunt (1807-1887) lies in its enclosure, for it consists of Darwin's own estimate of the important events of his life, prepared for publication. His *Autobiography*, it will be remembered, was a private document, written for his own amusement and the interest of his family.

(Letter 19)

[*Charles Darwin to Robert Hunt*]¹

Down, Bromley, Kent

May 3 [1868]

My dear Sir,

I am much obliged for your note. I enclose a copy of a sketch of the principal events in my life which will give you all the facts & more that you require.

Believe me my dear Sir

yours very faithfully,

Ch. Darwin.

[Signature only in Darwin's hand]

Charles Robert Darwin born Feb. 12 1809 at Shrewsbury, son of Dr Robert Waring Darwin F.R.S. & grandson of Dr Erasmus Darwin F.R.S. author of the *Botanic Garden*, *Zoonomia* &c & grandson by the mother's side of Josiah Wedgwood F.R.S. the celebrated potter. Educated at Shrewsbury School under Dr Butler afterward Bishop of Lichfield.

In the winter of 1825 went to the Edinburgh University for two years, & thence to Christ's College Cambridge, where he took his B.A. degree in 1831. In the autumn of 1831 Captain Fitz Roy R.N., having offered to give up part of his own cabin to any naturalist who would accompany H.M.S. Beagle in her surveying voyage & circumnavigation, Mr. Darwin volunteered his services without salary, but on condition that he should have the entire disposal of his collections. The Beagle sailed from England Dec. 27 1831 & returned Oct. 22 1836. Mr. Darwin published a volume as part of Captain Fitz Roy's general work descriptive of the voyage, in 1839. This volume was re-published in a modified form under the title of 'Journal of Researches' &c in 1845 & has since been several times reprinted. Between the year 1840 & 1843 Mr. Darwin edited the *Zoology of the Voyage of the Beagle* giving an account of the habits & ranges of the various animals therein described. In aid of the publication of this & the following works the Lords of the

Treasury granted £1,000. In 1842 Mr. Darwin published his work on 'The Structure & distribution of Coral Reefs'. In 1845, 'Geological Observations on Volcanic Islands', & in 1846 'Geological Observations on South America'. In 1851 & 1854 Mr. Darwin published two volumes by aid of the Ray Society on Pedunculated & Sessile Cirripedes, & the Paleontographical Society published for him two volumes on the Fossil Species of the same Class. Towards the close of 1859 Mr. Darwin published his 'Origin of Species,' of which four English editions have appeared, & nine foreign editions in French, German, Dutch, Italian, & Russian. Above one hundred reviews, pamphlets & separate books have been published on this work.

In 1862 Mr. Darwin published a book 'On the various contrivances by which Orchids are fertilized'.

Of separate papers published by Mr. D. the more important have been 'On the connection of certain Volcanic Phenomena in South America'; 'On the distribution of Erratic boulders in S. America'; 'On the formation of Mould by Earthworms' & 'On the Geology of the Falkland I's'; all published in the Trans. of the Geolog. Soc.

In the Journal of the Linnean Soc. three papers by him have appeared on the Dimorphous & Trimorphous states of *Primula*, *Linum* & *Lythrum*; & one paper 'On the Movements & habits of Climbing Plants', which has also been published as a separate work.

The Royal Soc. in 1853 awarded to Mr. D. the Royal Medal, & in 1864, the Copley Medal. In 1859 the Geolog. Soc. awarded him the Wollaston Medal.

Mr. D. married his cousin Emma Wedgwood in the beginning of 1839 by whom he has a large family.

He has lived for the last 26 years² at Down near Farnborough Kent, & is a magistrate for that county.

¹ Ms. in British Museum (Natural History) General Library: bound up with Robert Hunt's proof copy of *Biographical memoirs of men of eminence*.

² This statement enables this letter to be dated.

THOMAS FRANCIS JAMIESON

One of the marks of a man's greatness is the grace with which he acknowledges his mistakes. The biggest error which Darwin made was his attribution of the Parallel Roads of Glen Roy to the action of the sea in causing the formation of beaches subsequently raised to their present altitude above sea-level. That was in 1838, and his paper¹ on the subject was published in 1839. He had come to his conclusion because he could imagine no other agency by which these terraces could have been formed. Even after Agassiz and Dean Buck-

land had pointed out that a lake, dammed back by glaciers forming a bar across the valley, provided a better explanation of the Glen Roy Terraces, Darwin stuck to his opinion² until, in 1861, Thomas Francis Jamieson (1829-1913) visited Glen Roy at Darwin's suggestion and completely demolished his hypothesis of raised sea beaches.

The following letter which is printed here by the courtesy of the National Library of Scotland, is Darwin's acknowledgement of his mistake, and it led him to state in his *Autobiography* that 'my error has been a good lesson to me never to trust in science to the principle of exclusion'.³ The transcription was kindly checked by Mr. William Park.

¹ 'Observations on the Parallel Roads of Glen Roy, and other Parts of Lochaber, with an Attempt to prove that they are of Marine Origin', *Phil. Trans.*, 129, 39 (1839).

² The subject is treated at considerable length in *M.L.*, 2, 171-193.

³ *Autobiography*, edited by Nora Barlow (London, 1958), p. 84.

(Letter 20)

[Charles Darwin to Thomas Francis Jamieson]¹

Down, Bromley, Kent, S.E.
Sep. 6th. [1861]

Dear Sir

I thank you sincerely for your long & very interesting letter. Your arguments seem to me conclusive. I give up the ghost. My paper is one long gigantic blunder.

I suppose & hope that you will publish an account of what you have observed.² The case seems very interesting. What a wonderful record of the old icy lakes do their shores present! It really is a grand phenomenon. I have been for years anxious to know what was the truth, & now I shall rest contented, though ashamed of myself. How rash it is in science to argue because any case is not one thing, it must be some second thing which happens to be known to the writer.

I will take the liberty of forwarding your letter to Sir C. Lyell, as I am sure he would like to read it.³

With my sincere thanks. Pray believe me, my dear Sir

Yours sincerely
Ch. Darwin.

Did I not say that you would be able to settle the question?

¹ Ms. in National Library of Scotland.

² Jamieson's paper was published in the *Quart. J. Geol. Soc. Lond.*, 19, 235 (1863): 'On the Parallel Roads of Glen Roy and their place in the history of the glacial periods.'

³ Darwin to Lyell 6 Sept. 1861: 'I think

the enclosed is worth your reading. I am smashed to atoms about Glen Roy. My paper was one long gigantic blunder from end to end. Eheu! Eheu!' (*M.L.*, 2, 188). It will be noted that Darwin used the Latin exclamation of consternation.

PATRICK MATTHEW

Patrick Matthew (1790-1874) was one of the two men who independently, and before Darwin, had discovered the principle of natural selection and used it as a mechanism to explain how species become modified. Matthew had published his views on this subject in a work entitled *Naval timber and arboriculture* (1831) where they were buried until he himself drew attention to them after the publication of the *Origin of species* by an article in the *Gardener's Chronicle* of 7 April 1860. In spite of Darwin's public acknowledgement of Matthew's priority, it appears that Matthew remained dissatisfied, for he complained that an article in the *Saturday Analyst and Leader* of 24 November 1860 was 'scarcely fair in alluding to Mr. Darwin as the parent of the origin of species seeing that I published the whole that Mr. Darwin attempts to prove more than twenty-nine years ago.' (*L. & L.*, 2, 302). How far this claim was justified may be judged from the curious letter from Matthew to Darwin, which is included here for this very reason. It is clear that he lacked both Darwin's naturalist's experience and his powers of reasoning, and could have made but little of his discovery.

In 1865 Darwin's attention was called to Dr W. C. Wells's paper 'An account of a white female, part of whose skin resembles that of a Negro', read before the Royal Society on 1 and 8 April 1813, and published in 1818 in a new edition of Wells's *Essay on dew*. Darwin thereupon wrote to Hooker: 'So poor old Patrick Matthew is not the first, and he cannot, or ought not, any longer to put on his title-pages "Discoverer of the principle of Natural Selection"' (*L. & L.*, 3, 41).

The originals of Darwin's and his wife's letters were lent to Dr W. T. Calman by Miss Euphemia Matthew in 1912. The dates were determined by Sir Francis Darwin. Copies of these letters, and the original letter from Matthew are in the Autograph Collection in the General Library of the British Museum (Natural History), and are reproduced here by permission of the Trustees of the British Museum.

(Letter 21)

[*Charles Darwin to Patrick Matthew*]¹

Down, Bromley, Kent
June 13th [1862]

Dear Sir,

I presume that I have the pleasure of addressing the Author of the work on Naval Architecture and the first enunciator of the theory of Natural Selection.

Few things would give me greater pleasure than to see you; but my health is feeble and I have at present a son² ill and can receive no one here, nor leave home at present.

I wish to come up to London as soon as I can; if, therefore, you are going to stay for more than a week, would you be so kind as to let me hear, and if able to come up to London, I would endeavour to arrange an interview with you, which [would] afford me high satisfaction.

With much respect

I remain Dear Sir

Yours very faithfully

Ch. Darwin.

¹ Ms. in British Museum (Natural History), General Library, Autograph Collection.

² Horace Darwin (1851-1928).

(Letter 22)

[*Emma Darwin to Patrick Matthew*]¹

Down, Bromley, Kent

Nov. 21 [1863]

Dear Sir,

Mr. Darwin begs me to thank you warmly for your letter which has interested him very much. I am sorry to say that he is so unwell as not to be able to write himself.

With regard to Natural Selection he says that he is not staggered by your striking remarks. He is more faithful to your own original child than you are yourself. He says you will understand what he means by the following metaphor.

Fragments of rock fallen from a lofty precipice assume an infinitude of shapes—these shapes being due to the nature of the rock, the law of gravity &c.—by merely selecting the well-shaped stones & rejecting the ill-shaped 'an architect (called Nat. Selection) could make many and various noble buildings.'²

Mr. Darwin is much obliged to you for sending him your photograph. He wishes he could send you as good a one of himself. The enclosed was a good likeness taken by his eldest son but the impression is faint.

You express yourself kindly interested about his family. We have 5 sons & 2 daughters, of these 2 only are grown up. Mr. Darwin was very ill

2 months ago & his recovery is very slow, so that I am afraid it will be long before he can attend to any scientific subject.

Dear Sir,

Yours truly,

E. Darwin.

¹ Ms. in British Museum (Natural History), General Library, Autograph Collection.

² This is an early appearance of the analogy used by Darwin in *Variation of animals and plants* . . . , 2, 431

(Letter 23)

[*Patrick Matthew to Charles Darwin*]¹

Gourdiehill, Errol, Scotland, March 12/71.

To Charles Darwin Esq.

Dear Sir,

I am glad to see by the Newspapers² that you have had health & strength so as to be able to bring out full illustrations of the variation & selection Laws of Nature. Of which I would desire to be able to write a Critique, but am so much taken up with political and agricultural affairs that I fear I will not have time, more especially as I intend in a few weeks to go over to Germany where one of my sons has been settled as an agriculturist for many years & has a large family; and as being known quite as much in Germany as in Britain I may remain some time. I also fear that I am not sufficiently a restricted Naturalist as to be able to enter into the minutie of the science. I am now engaged with the cultivation of Peace & of Climate, also the Philosophy of Agriculture, in which being above 4 score it is probable I may not be able to complete, as you have been able to do in your province. I enclose an Article from the Scotsman Newspaper which will shew I am not yet quite effete. I hope your family are now all well, When you wrote to me long go, one of your sons was very unwell. I hope he recovered.

I have not had time to give the subject—the modification of life to circumstances—sufficient attention. One strange character of Rye, acquired we may suppose by being so very long cultivated in field, of taking a gregarious nature, was observed by me when over in Germany. I [was] walking through Wheat fields searching for new varieties of wheat, I found a few scattered plants of Rye, which being nearly ripe, had only 2 or 3 grains in the Ear, the other spaces being empty chaff. Also in a few solitary ears of Rye on the high way I found equally unfruitful. This did not seem to be from bird depredation. At the blooming time of fields of Rye, Rye grass, *pinus sylvestris* & *pinaster*, in time of a soft S. West

Zephyr, there is often seen a pollen mist [cl]oud sweeping along, which in the rye seems necessary to the fecundation probably from being so long used to it.

There cannot be a doubt that in the scheme of Nature there exists high design & constructive power carried out by general Laws, and the great probability is that these laws are everlasting, as Nature itself is, tho' under these laws subject to revolution. It is also probable that the spark of life, like light, & heat &c., is radiated from the sun & has a power of building up to itself a domicile suited to existing circumstances & disseminating sparks of its own kind, but possessed of a variation power. That there is a principle of beneficence operating here the dual parentage and family affection pervading all the higher animal kin[g]dom affords proof. A sentiment of beauty pervading Nature, with only some few exceptions affords evidence of intellect & benevolence in the scheme of Nature. This principle of beauty is clearly from design & cannot be accounted for by natural selection.³ Could any fitness of things contrive a rose, a lilly, or the perfume of the violet. There is not doubt man is left purposely in ignorance of a future existence. Their pretended revelations are wretched nonsense. It is a beautiful parable, the woman walking through the City of Damascus bearing fire in the one hand & water in the other, crying, with this water [*sic: recte* fire] I will burn heaven & with this water extinguish hell that man may worship God for his own sake & not as mercenary labourers. We are gifted with a moral sense & it is delightful to do good. It is a pleasure to me to wish you & Yours the enjoyment of doing good. I regret I cannot do more than wish it.

Patrick Matthew

P.S. I see it stated that you cannot account for useless parts by the laws of variation & competition, general laws cannot provide against accidents in all cases.

¹ Ms. in British Museum (Natural History), General Library, Autograph Collection.

² The *Descent of Man* was published in February 1871, and the newspapers referred to were reviews of that work.

³ The view that beauty could not have arisen by natural selection had already been disproved by Darwin in the 4th edition of the *Origin of species* (1866). (*World's Classics* edition, p. 210).

(Letter 24)

[*Charles Darwin to Patrick Matthew*]¹

Down, Beckenham, Kent
March 15th [1871]

Dear Sir,

I thank you for your kind letter. You show no signs of your four score years in your letter or in the newspaper article, which seem written with your

pristine vigour.—My health keeps very indifferent and every exertion fatigues me, so that I doubt whether I shall be good for much more. Your parable of the Damascus Woman is quite new to me and very striking.

I sincerely wish you a happy meeting with your son.—I have many letters to write so pray excuse my brevity, and believe me,

with respect,

Yours faithfully,

Ch. Darwin.

¹ Ms. in British Museum (Natural History),
General Library, Autograph Collection.

ALFRED NEWTON

Alfred Newton (1829–1907), was one of the first converts to evolution by natural selection after the paper read before the Linnean Society in 1858: ‘Herein was contained a perfectly simple solution of all the difficulties which had been troubling me for months past.’

The following letters, preserved in the Balfour Library, Cambridge, were discovered among thousands of letters addressed to Newton, by Miss June Scrivener when she was Librarian. They are reproduced here by the courtesy of Professor Sir James Gray, C.B.E., F.R.S.

(Letter 25)

[*Charles Darwin to Alfred Newton*]¹

Down, Bromley, Kent, S.E.

March 24th 1863

My dear Sir,

I thank you sincerely for the potatoes,² which arrived safely & are planted; they may come in very useful in crossing; as our cultivated potatoes present some odd peculiarities in their reproduction.

I shall be exceedingly glad of the foot of the Partridge, if you can get it for me; I will weigh the earth & then see, with due precautions, whether it contains any seeds capable of germination; I presume the foot will turn out to be a wounded one. I suppose you feel sure it is not a stupid hoax.

With my sincere thanks for your kindness

My dear Sir

Yours sincerely

Ch. Darwin.

¹ Ms. in Balfour Library, Cambridge.

² In Newton's hand: ‘Wild potatoes given me by Mr. Colchester who brought them

from the W. Coast of S. America & was my fellow passenger from St. Thos. to England in Jan^y 63.’

(Letter 26)

[Charles Darwin to Alfred Newton]¹

Down, Bromley, Kent

March 29th 1864

My dear Sir,

Since receiving your letter of Oct. 21st, I have been, & am still ill; but I managed to examine the partridges leg—the toes, & tarsus were frightfully diseased, enlarged & indurated. There were no concentric layers in the ball of earth, but I cannot doubt that it had become slowly aggregated, probably the result of some viscid exudation from the wounded foot. It is remarkable, considering that the ball is three years old, that 82 plants have come up, from it, 12 being monochot. & 70 dichot. consisting of at least 5 different plants, perhaps many more.² The bird limping about during the autumn would easily collect many seeds on the viscid surface. I am extremely much obliged to you for sending me this interesting specimen.

I am, dear Sir

yours very faithfully

Charles Darwin.

[Signature only in Darwin's hand]

¹ Ms. in Balfour Library, Cambridge.² cf. *Origin of species* (*World's Classics* edition, p. 429).

(Letter 27)

[Charles Darwin to Alfred Newton]¹

Down, Bromley, Kent

April 6 1864

My dear Sir,

I am very much obliged for your kind note. After removing the earth I washed the leg. I sat down to dissect it but found myself too weak, & then I am very sorry to say I threw it away, for it never occurred to me that you or any one else cared for a critical examination of the cause of the injury.

I assure you that I regret extremely but the evil is now irremediable.

My dear Sir

your truly obliged

Ch. Darwin.

[Signature only in Darwin's hand]

¹ Ms. in Balfour Library, Cambridge.

(Letter 28)

[*Charles Darwin to Alfred Newton*]¹

Down, Bromley, Kent, S.E.

Oct. 29 1865

My dear Sir,

As I have always held, if you will permit me to say so, a very friendly feeling & respect towards you, it is with sincere regret, I may say with pain, that I feel I cannot give you a testimonial for the intended Professorship, of which I had not previously heard; for in my opinion in the present state of Zoological Science it would be indispensable that a teacher should have especially studied comparative anatomy & Histology, & likewise have attended much to the invertebrate animals which exhibit such different types of structure.

If I am not mistaken, you have not published on these subjects, & have chiefly attended to Birds, including their habits, instincts, distribution & other such philosophical points. I do not suppose my testimonial would be of much value, & with not a few members of the University it w^d be absolutely injurious. Nevertheless, it would have been a great satisfaction to me to have given you a testimonial, had it been in my power.²

Pray believe me

my dear Sir

yours very sincerely

Ch. Darwin.

[Signature only in Darwin's hand]

¹ Ms. in Balfour Library, Cambridge.² Newton's candidature for the Chair was successful and he was elected on 1 March 1866, the first Professor of Zoology and

Comparative Anatomy in the University of Cambridge, a post which he held until his death.

(Letter 29)

[*Charles Darwin to Alfred Newton*]¹

Down, Bromley, Kent, S.E.

Feb. 27 1868

My dear Professor Newton,

I am very much obliged to you for your corrections of my errors which are serious enough. That about the Chinese goose² was a scandalous piece of idleness on my part, for I had a notion that it was described in the Amur expedition; but I was at that time so sick of my book³ that I had not the heart to enquire. These valuable corrections, I am sorry to say, are too late for the 2nd Ed. which is now printed off.⁴ I return the printed paper with

thanks; I once bred a pigeon like that described, but the case of the buzzard, if not a hybrid, w^d be very interesting.

With many thanks for your kindness believe me

yours very sincerely

Ch. Darwin.

[Signature only in Darwin's hand]

¹ Ms in Balfour Library, Cambridge.

² cf. *Variation of animals and plants* . . . I, 237.

³ *Variation of animals and plants* . . .

⁴ From the letter from Darwin to de

Candolle of 6 July 1868, it was not the second edition which had then been printed off, but the second printing, since the whole of the first edition was sold within one week of publication. (See Baehni, *Gesnerus* 12, 127 (1955).)

(Letter 30)

[Charles Darwin to Alfred Newton]¹

Down, Beckenham, Kent

March 12th 1874

My dear Prof. Newton

I am so sorry that I cannot answer your questions. It w^d take me weeks to find references for the facts stated in the Origin; but I can assure you that I stated nothing without authority which I at the time thought good though no doubt I was often mistaken.² Had health permitted I sh^d have published all the chapters in extenso with references; but I do not suppose that I shall now ever have the strength. By the way I was using a note of yours this very morning & striking out passage about a gull dipping a mouse in water to swallow it. I cannot give reference about Missel-thrush, but Gould³ told me that he doubted the truth of statement & I *then* looked again at my authority & it seemed good, so I left the statement; but I daresay you are right. Since my Boyhood, now about 50 years, I feel sure that Missel-thrush has much increased: I remember my astonishment when I saw the first which appeared in my Father's grounds at Shrewsbury. Starlings have, also, I believe much increased: Mr. Norman a well-known man in Kent, observant & a good sportsman, remarked to me some years ago on the astonishing increase of starlings in Kent during his life. How inexplicable most of these cases are & that of Green's about the titmouse.

Believe me my dear Prof. Newton

Yours very sincerely

Ch. Darwin

P.S.

By *cerebration* I have just remembered & found reference about the Missel-thrushes. It relates to those birds in Banffshire by Mr. I. Edwards in

Zoologist vol. 13-14, 1855-1856, p. 5260—says has lately increased ‘& bids fair to outnumber the common species, for as the one is gaining ground the other is losing it.’

This is my copy of the original, for I have not the book.

¹ Ms. in Balfour Library, Cambridge.

² In the Introduction to the *Origin of species* Darwin explained that as that book was only an abstract from the much larger work, ‘I cannot here give references and authorities for my several statements; and I must trust to the reader reposing some confidence in my

accuracy.’ An attempt is now being made to reconstruct the bibliography to the *Origin of species*.

³ John Gould (1804-1881). Presumably the reference is to the increase of the Mistle-thrush, cf. *Origin of species* (*World’s Classics* edition, p. 77).

(Letter 31)

[Charles Darwin to Alfred Newton]¹

Down, Beckenham, Kent

March 14 1874

My dear Professor Newton,

I have no definite information to give you on the point about which you write. I agree with you that the distribution of eggs is of subordinate, tho’ of course of some importance, as I believe all birds will lay a second time. Have we not evidence how little the taking of the eggs lessens the numbers of species, on some of the Northern islands where the eggs of sea-fowl are annually collected?² From my own observations here I infer that occasional severe winters are by far the most important check; & this must apply to the adults.

In St. John’s³ Tour in Sutherlandshire, Vol. 2, 1849, p. 178-179 you will find some particulars (if not already known to you) of the recent increase of certain birds, by the destruction of vermin. (Misseltoe Thrushes compete in my garden with thrushes & blackbirds for yew-berries). The famous horticulturist Rivers,⁴ now an old man, & whose father & grandfather have kept the same garden, told me that birds have increased greatly, so that he is now obliged to protect almost everything by nets, which was not the case in his father’s time.

I fear this letter will be of very little use.

I cannot remember about the Fulmar.

Yours very sincerely,

Ch. Darwin

[Signature only in Darwin’s hand]

¹ Ms. in Balfour Library, Cambridge.

² The principle adumbrated in this para-

graph is important as showing that Darwin was aware that organisms could produce

more offspring than they actually did, and that the number of offspring produced was not necessarily the major limiting factor in the survival of the species, since selection was more severe on adult birds in winter. It is now recognized that the greatest advantage accrues to individuals that produce the

optimum, not the maximum, number of offspring (cf. Lack, D. 'The evolution of reproductive rates', in *Evolution as a process* (London, 1954), p. 143.

³ Charles George William St. John. cf. *Variation of animals and plants . . .*, I, 47.

⁴ Thomas Rivers (1798-1877).

RICHARD OWEN

Darwin first met Richard Owen (1804-1892) at the house of Sir Charles Lyell on 29 October 1836, less than one month after the *Beagle* had landed him at Falmouth. Owen, who had then recently been appointed Hunterian Professor at the Royal College of Surgeons, was one of the very few men who took any interest at all in the collections which Darwin had made, and one of Darwin's first problems was to decide what to do with them. 'I dare say that the British Museum would receive them', he wrote¹ to Henslow on 4 October 1836, 'but I cannot feel, from all I hear, any great respect even for the present state of that establishment'. It is in this light that the first of the following letters is written. It is included here by the courtesy of the Director of the Fitzwilliam Museum, Cambridge.

The remaining letters, preserved in the Owen Correspondence in the General Library of the British Museum (Natural History) and published here by courtesy of the Trustees, reveal the warm friendship on Darwin's part prior to Owen's attack² on the *Origin of species*.

¹ *L. & L.*, I, 273.

² *Edinburgh Review*, April 1860, 487-532.

(Letter 32)

[*Charles Darwin to Richard Owen*]¹

Christ Coll: Cambridge
December 19th—1836

My dear Sir,

I have just written and will send at the same time with this, a letter to Sir Ant: Carlisle.²—I have done exactly as you recommended me.—I thought myself compelled to fix on the British Museum in preference to that in Paris³ because I was carried on board a King's Ship; and the public collection of the country certainly has claims on me.—If the collection had been made entirely at my own expense, that is on board a Merchant vessel, then I should not have hesitated in making a different choice.—I quite agree with you that the British Museum ought to make returns when it has the power.⁴—

I suppose you could not venture to propose another set for Paris. Their value would be so much more in that collection than in the British Museum.—I ought to make up my mind to give my own set to Paris, but I confess I should be grieved to lose my trophies. I should feel like a knight who had lost his armorial bearings.—If the council should not choose to go to the expence necessary for making all the casts; it was suggested to me here, that the College might pay the price of forming the casts and the public bodies purchase the models, but I think you will agree with me, that if this can be avoided, it will be better.

With respect to great head of the Rodent,⁵ I certainly feel inclined to run the risk of taking a cast because the models will be more generally useful, even in case the head itself should be injured or destroyed. But I am sure after the kind and effectual manner with which you have entered on this affair I cannot do better than follow your advice.—I, at one time, began to think that the fossil bones would be as troublesome to me and as of little service as some other branches of my collection are likely to be.—But now I look back on the trouble I took in procuring them with great satisfaction. I do assure you I feel grateful to you, for having given me such good assistance.—I have scarcely begun to unpack my cases; in the course of a week I shall have everything open, and I already know of one very large bone (of a Mastodon ??) which I will forward to the College.—When separating the animals in Spirit I will put by any that I think will interest you.—And, it will be a great pleasure to me if I chance to possess any think [*sic*] which will be of use to you in your numberless investigations.—

Believe me my dear Sir

Your very truly obliged

Charles Darwin.

¹ Ms. in Fitzwilliam Museum, Cambridge.

² Sir Anthony Carlisle (1768-1840) was the President of the Royal College of Surgeons of England.

³ From these remarks it appears that the greater suitability of the Paris Museum of Natural History (where five years previously Owen had worked with Cuvier) as a repository for Darwin's collections, had been discussed.

⁴ A number of specimens collected by Darwin and described in the *Zoology of the*

voyage of the Beagle were presented to the British Museum in 1837 by Sir William Burnett (Physician-General of the Navy) and Captain FitzRoy. Some of Darwin's specimens were given to the Zoological Society's Museum, from which they were transferred to the British Museum in 1855. (*History of the Collections* (1906), 2, 28.) The fossil mammals were given to the Royal College of Surgeons from which the remnants came to the British Museum (Natural History) in 1946.

⁵ Presumably the Capybara.

(Letter 33)

[Charles Darwin to Richard Owen]¹

Down, Farnborough, Kent

July 17th [1854]

Dear Owen,

I will forward by this post the correspondence to Capt. Nelson². I have told him that an abstract will certainly (as I presume) appear which I hope will in some degree satisfy him. I cannot tell you how much gratified I am at what you say about the Cirripedia.³ I really feel rewarded for more labour than you would readily believe it possible could have been bestowed on the work. I have, however, made a mess of it, for I got so frightened at the thought of all the sessile species, that I have not illustrated & given in nearly detail enough my anatomical work, which is the only part of the work which has really interested me. I find the mere systematic part infinitely tedious. I can, however, honestly state that all I have said on the males⁴ of Ibla and Scalpulum is the result of the most careful & repeated observations. If I am ever proved wrong in it, I shall be surprised. But my pen is running away with me; it is your fault, for I have been so much pleased with what you say. Making out the homologies of the shell and external parts of Cirripedes, as I fully believe correctly (and I am glad to say that Dana⁵ admits the view), gave me great satisfaction. But I must not bore you with my triumph. I have been very seldom in London for the last year. When I was last there I called at the College to see you, but you were just gone out. Pray believe me, in great state of triumph, pride, vanity, conceit, &c., &c.

Yours sincerely,

Charles Darwin.

¹ Ms. in British Museum (Natural History), Owen Correspondence, volume 9, ff. 188-190; partly printed in *The life of Richard Owen* (1849), I, 407-8.

² Presumably Richard J. Nelson (1803-1877) geologist and ultimately Major-General, who studied and published on the coral formation in the Bermudas.

³ A monograph on the sub-class Cirripedia—the Balanidae (London, 1854).

⁴ Darwin's discovery of dwarf complementary males in these forms has been fully confirmed.

⁵ James Dwight Dana (1813-1895). He is referred to by Darwin in his *Monograph of the Cirripedia—the Lepadidae* and thanked for information contained in letters, one of which must have agreed with Darwin's homologies.

(Letter 34)

[Charles Darwin to Richard Owen]¹

Down, Bromley, Kent

Dec. 10th [1859]

Dear Owen,

The passage in Hearn's Travels is at p. 370 in (I am almost sure) the 4th Edit. I see it is in my wife's handwriting, & is abbreviated, & not grammar,

so you must look to original. My abbreviated extract is as follows.

The black bear catches fresh-water insects by swimming with mouth open '*like a whale*' (what is meant by these inverted commas, I know not). These insects are in wonderful numbers. So that they are driven together into the Bays to the thickness of 2 or 3 feet & make a dreadful smell. These insects are of two kinds. All the bears have their stomachs distended. I hardly ever heard a more curious fact than that about the Liver.²

I do not think I thanked you for, as I understood, your extremely kind intended present of Hunter's Book³, which from what you said to me (with the previous note) will be extremely interesting to me.

Yours very truly

C. Darwin.

¹ Ms. in British Museum (Natural History), Owen Correspondence, volume 9, ff. 211-212.

² On Darwin's analogy between bears and whales see Appendix VI.

³ '*Observations and reflections on Geology, by J. Hunter . . . intended to serve as an Introduction to the catalogue of the collection of extraneous fossils.*' [Edited, with a preface, by R. Owen.] (London, 1859.)

BADEN POWELL

The Rev. Baden Powell (1796-1860), F.R.S., Savilian Professor of Geometry at Oxford, was a physicist who combined scientific research in optics and radiation with philosophical speculation and theological controversy against the tractarians which he conducted along latitudinarian lines. In 1855 he published *Essays on the spirit of the inductive philosophy, the unity of worlds, the philosophy of Creation*, in which he adopted the view that the introduction of new species of living organisms was subject to law as 'a regular not a casual phenomenon'. He read the first edition of Darwin's *Origin of species* (published 24 November 1859 or the second edition published January 1860), and wrote him a letter which must have been appreciative but at the same time reproachful that Darwin had not referred to his work. The following two letters are Darwin's reply.

These letters, written at a time when Darwin was exhausted with fatigue from the effort of completing the *Origin of species* from start to finish in thirteen months, are of importance for a number of reasons. In the first place they contain Darwin's own claim of originality for the application of the principle of natural selection to the modification of species, which is unassailable. His three friends, the greatest contemporary geologist, botanist, and zoologist, in the persons of Lyell, Hooker, and Huxley, refused even to accept the fact of evolution which the principle of natural

selection was designed to explain, before the arguments in the *Origin of species* compelled them to do so.

Darwin might have defended his claims even more vigorously for in 1842 he had drawn up a *Sketch* and in 1844 a complete Essay, in which the application of the principle of natural selection to the modification of species was already worked out; and this ante-dated Powell's own work by many years.¹

Secondly these letters show Darwin's distressed state of mind at the suggestion of the possibility that he had acted ungenerously. They also show what tricks his memory could play on him. The immediate result of this feeling was his decision to include the Historical Sketch which was inserted at the head of the first German edition of the *Origin* published in 1860, the third English edition published in 1861, and all subsequent editions. In this Sketch Powell is referred to in the identical words of Letter 36, quoted from the Preface of his large work of which the *Origin of species* was only an 'abstract'.

Powell did not live to see these words in print because he died on 11 June 1860. It may be added that his youngest son, born three years before, was to become the Chief Scout.

These letters are included here by the kindness and courtesy of Mr Quentin Keynes, great-grandson of Darwin.

¹ Darwin's *Sketch* of 1842 and *Essay* of 1844 remained unpublished until 1909 when Sir Francis Darwin published them at Cambridge under the title *The foundations of the Origin of species*. They were reprinted

under the title of *Evolution by natural selection* and published in 1958 by the Cambridge University Press for the XVth International Congress of Zoology and the Linnean Society of London.

(Letter 35)

[*Charles Darwin to the Rev. Baden Powell*]¹

Down, Bromley, Kent
Jan. 18th/60

My dear Sir,

I am much pleased by your appreciation of my book, as everyone must admit that you are a master in philosophical logic: I am the more pleased at this, as one eminent scientific man² writes to me that I have violated the whole spirit of inductive philosophy.

My health was so poor, whilst I wrote the Book, that I was unwilling to add in the least to my labours; therefore I attempted no history of the subject; nor do I think that I was bound to do so. I just alluded indeed to the *Vestiges* & I am now heartily sorry I did so. No educated person, not even the most

ignorant, could suppose that I meant to arrogate to myself the origination of the doctrine that species had not been independently created. The only novelty in my work is the attempt to explain *how* species became modified, & to a certain extent how the theory of descent explains certain large classes of facts; & in these respects I received no assistance from my predecessors. To the best of my belief I have acknowledged with pleasure all the chief facts & generalities which I have borrowed. If I have taken anything from you, I assure you it has been unconsciously; but I will reread your Essay. Had I alluded to those authors who have maintained, with more or less ability, that species have not been separately created, I should have felt myself bound to have given some account of all; namely, passing over the ancients, Buffon (?) Lamarck (by the way his erroneous views were curiously anticipated by my grandfather), Geoffr[o]y St Hilaire & especially his son Isidore; Naudin; Keyserling; an American (name this minute forgotten);³ I believe some Germans;⁴ Vestiges of Creation; Herbert Spencer; & yourself.⁵

The task would have been not a little difficult, & belongs rather to the Historian of Science than to me. I ought also to have alluded to chief maintainers of opposite doctrines. I had intended in my larger book to have attempted some such history, but my own catalogue frightens me. I will, however, consult some scientific friends & be guided by their advice.

Permit me to add that I read your Philosophy of Creation with great interest: it struck me as excellently & vigorously argued & written with a clearness, which I remember excited my warmest admiration. I most fully agree that your work must have had a great effect with philosophical minds in removing prejudices on the subject; in the higher degree but in nearly the same manner as the Vestiges has had with a less highly-endowed class of readers. I have had to make by letter the same acknowledgement to the author⁶ (as I believe) of the Vestiges. By the above remarks I do not by any means intend to say that your work has not entirely converted many readers, & induced them to give up the doctrine of creation: in simple truth I do not at all know how the case stands. I should not have *presumed* to make these remarks on your work, had not your letter induced me.

Believe me, with sincere respect, my dear Sir,

Yours sincerely,

Charles Darwin.

¹ Ms. in the possession of Quentin Keynes, Esq.

² Adam Sedgwick.

³ See Letter 36.

⁴ Goethe.

⁵ All these authors and others are recorded with their works in the Historical Sketch prefaced to the third and subsequent English editions of the *Origin of species*. This sketch first appeared in the first German edition,

published by H. G. Bronn, Stuttgart, 1860, where it is dated from Down, Bromley, Kent, February 1860. Additional names are given in the Foreword to *Evolution by natural selection* (Cambridge, 1958), p. 1.

⁶ Robert Chambers (1802-1871), founder of the publishing house of that name, had published the *Vestiges of Creation* anonymously in 1844.

(Letter 36)

[*Charles Darwin to the Rev. Baden Powell*]¹

Down, Bromley, Kent
Jan. 18th/60

My dear Sir,

Thinking over my letter addressed to Athenaeum Club to you this morning, as far as I remember it, it has just occurred to me that you might misunderstand one passage; & though I do not suppose that you would care much for my opinion, I sh^d be very sorry that anyone should suppose that I ranked your Essay & the *Vestiges* in the same class. I coupled them merely in relation to both having produced a good effect on the public mind; the *Vestiges* probably on a greater number but on a very inferior class.

The more I think of the whole subject the more difficult I feel it would be to give a fair account of the several authors who have maintained on various grounds the modification of species. I beg pardon for troubling you with this second note & remain

My dear Sir

Yours sincerely

Charles Darwin.

Haldeman is name of American author forgotten this morning. I have just bethought me of a Preface which I wrote to my larger work, before I broke down & was persuaded to write the now published abstract. In this Preface I find following passage, which on my honour I had completely forgotten as if I had never written it. "The "Philosophy of Creation" has lately been treated in an admirable manner by the Rev. Baden Powell in his Essay &c 1855. Nothing can be more striking than the manner in which he shows that the introduction of new species is "a regular not a casual phenomenon", Or as Sir John Herschel expresses it "a natural in contradistinction to a miraculous process".²

¹ Ms. in the possession of Quentin Keynes, Esq.

² Other references to Baden Powell are to be found in *L. & L.*, 2, 285; *M.L.*, 1, 175: *Life and letters of Hooker*, 1, 478, 514.

EDWARD SABINE

Edward Sabine (1788-1883) was President of the Royal Society when the Copley Medal was awarded to Darwin in 1864, and in his address he said of the *Origin of species* that 'we have expressly omitted it from the grounds of our award.'¹ T. H. Huxley immediately challenged this statement by asking for the Minutes of the Council to be read, and they contained nothing of the kind.² At the date when the following letter was written, Sabine was General Secretary of the British Association for the Advancement of Science. It is not generally known that Darwin had been invited to be President of the Natural History Section at the Meeting at Liverpool in 1854.

The following letter is preserved in the Archives of the Royal Society.

¹ *L. & L.*, 3, 29.

² *Life and letters of T. H. Huxley*, I, 255.

(Letter 37)

[*Charles Darwin to Colonel Edward Sabine*]¹

Down, Farnborough, Kent
28 June [1854]

My dear Sir

It may appear ridiculous or not very credible, but in simple truth I am not equal to taking the chair of the Nat. Hist. section, at Liverpool, when I hope to attend. Very little fatigue, or excitement or anxiety (of which I sh^d have plenty) almost invariably brings on so much swimming of the head, nausea, & other symptoms, that the effect of sitting 2 or 3 (or even less) [? days] in a public chair would be quite intolerable to me. I assure you I feel to the full the honour of being asked to act as President to a section of the Brit. Association; & for this honour & others, I am (as I believe) indebted to you. If you have occasion to make any excuse for me to others, be so kind as to make a general one on the score of health. Pray believe me

Yours sincerely & obliged

Charles Darwin.

¹ Roy Soc. Mss. Sa. 386.

HENRY TIBBATS STANTON

From Henry Tibbats Stanton (1822-1892) Darwin obtained important information which he used in his *Descent of Man* to illustrate the principles of sexual selection.

(Letter 38)

[Charles Darwin to Henry Tibbats Stainton]¹

Down, Bromley, Kent

April 13th/56*Private*

Dear Sir,

I am much obliged to you for so courteously sending me a copy of 'Entomologist Weekly Intelligence'. I do not suppose that I ought to mention anything which passed on the Council. But I may say that I individually have nothing to object to in your remarks. I can see, however, that apparently you are not aware of a most important change made 3 years ago, with consent of the Queen, in the distribution of the Royal Medals; before that time it was compulsory in the Council to give it to men for publications in the Transactions, & this will explain, if you take the trouble to look at the names, the cause of many of the awards. It was, I think, an *extremely* bad rule. Hence I think you will perceive why, *except to Mr. Newport*, no medal was given to an Entomologist.² Since the rule was changed, the 3 recipients have been myself (when I was not on council), Dr Hooker, and Mr. Westwood. As I have been a recipient, of course I can say nothing whether or not the awards have been well, or atrociously ill made; but this I can say that the Council takes great trouble in deciding, & a most difficult & disagreeable task it is to perform.

Pray believe me

Dear Sir

Yours very faithfully

Ch. Darwin.

¹ Ms. in British Museum (Natural History), General Library, Autograph Collection.

² On the Royal Society's Royal Medal see Appendix VII.

(Letter 39)

[Charles Darwin to Henry Tibbats Stainton]¹

Down, Bromley, Kent, S.E.

Feb 18/68

Dear Mr Stainton,

I am going to be very unreasonable & beg from you any little information which you can give me on some points, which can hardly fail to be very doubtful.—I must trust to your kindness to excuse me.—I am working up what I have called 'sexual selection', & am sadly in want of facts in many classes of insects, especially in reference to the following points.

(1) The male Emperor & Brimstone butterflies are much more beautiful than the females: in these cases, or in any other in which male is plainly more beautiful than female, are the males more numerous than females: or reversely?

(2) In *Pamphila actaeon* the female is rather more brightly coloured than male: are there any other such cases, & especially how about inequality of number in the sexes?²

(3) With Moths are the males in any cases decidedly coloured more brightly than females? Judging from Plates there is a good deal of difference between the sexes, but I know not which can be called brightest, in *Oenistis* [*recte*: *Oeonistis*] *quadra*. In any case if well-marked sexual difference in colour; how about numbers?

(4) Certain Butterflies, as the Fritillaries have wings fully as beautiful (or perhaps more) on under as on upper surface; do these when excited & fully awake, as when in presence of female, display the lower surface more than such Butterflies with obscure under surfaces as *Vanessae*? In the Emperor both upper & lower surface are beautiful.

(5) Have any Moths wings more conspicuously coloured on lower than upper surface? I know that many moths have posterior wings gaily coloured, which are hidden when the insect is at rest.³

(6) I have heard it stated that crepuscular & diurnal moths alone display fine colours, & that the strictly nocturnal moths are always obscure or white; is this true?

(7) Do the *Teneinae* display well marked sexual differences of colour?

Now you will think me, I fear, the most unreasonable & troublesome man in Great Britain; & I can hardly expect you to go *seriatim* through my queries. But I sh^d be truly obliged for any hints, with permission to quote you, on any of the above points, or more generally on the courtship, battles of the males,—the selection by the female of any particular male—of the mutual attachment of individual insects,—unequal numbers in sexes,—with *Lepidoptera* or indeed with any class, if by chance any such facts sh^d occur to your mind. Sir J. Lubbock tells me that you have made many miscellaneous observations on all sorts of insects. Now if you can forgive me & aid me you will prove yourself a good Christian as well as a great Entomologist.

My dear Sir

Yours very sincerely

Ch. Darwin.

I have been sincerely grieved to hear about poor Wollaston's⁴ affairs, in which, I am told, you have taken so kind an interest.

¹ Ms. in British Museum (Natural History), Department of Entomology Library.

² *cf. Descent of Man*, I, 310.

³ *cf. Descent of Man*, I, 397.

⁴ Thomas Vernon Wollaston (1822–1878).

GEORGE CHARLES WALLICH

Darwin's attention was called to George Charles Wallich (1815-1899) by the latter's *Notes on the presence of animal life at vast depths in the sea*, a work of 38 pages which was printed for private circulation in 1860, and of which Darwin received a copy when he was engaged in preparing the 3rd edition of the *Origin*. The fact that Wallich had, in that same year, sailed as a naturalist in H.M.S. *Bulldog* was also calculated to interest Darwin. The first of the following letters shows that his interest in problems of oceanography had not diminished.

The second letter is noteworthy for two reasons. The first is that with regard to the origin of life, Darwin adopted a view which today, after the passage of eighty years, is at the focus of interest. The second reason is that, so far as is known, this letter is his last. He died on 19 April, 1882.

The texts of these letters are taken from manuscript copies made by Wallich preserved in the British Museum (Natural History). The whereabouts of the holograph originals is unknown.

(Letter 40)

[*Charles Darwin to George Charles Wallich*]¹

Down, Bromley, Kent.
Dec. 12, 1860.

Dear Sir,

I beg permission to thank you sincerely for sending me your 'Notes on Animal Life in vast Depths'. It has interested me extremely.

You have indeed made a grand beginning at an admirable field of research.

If you would not think me very unreasonable, you would do me a great favour, if you would inform me on one point not noticed in your Notes. In the account given in the *Times*, it is stated that the Machine or Borer, *either often or sometimes penetrated through the Foraminiferous deposit into different underlying matter*. This would show that the Foraminiferous deposit was sometimes or often thin; and this is the point on which I am anxious for information. It bears on the decay of the exuviae of organisms at the bottom of the sea; & is important for me in relation to some few passages in my Book on the Origin of Species, of which I am now preparing a corrected Edition.—

You allude, also, to bare rock at the bottom of the Sea. Have you any reason to believe that extensive areas are bare?—About the Borer I had with hesitation thought of quoting the *Times*; but if the facts are true, I should of course infinitely prefer just alluding to the case on your authority.²

What a wonderful fact about the Ophiura, & what a capital proof of the Foraminifera having been alive is their discovery in their stomachs.

Do you not think that you are rather bold in inferring that the basaltic pebbles were rounded at such great depths? Are you sure they were not dropped by icebergs either recently or at the close of the Glacial period? With my best thanks & apologies for troubling you, I remain,

Dear Sir

Yours very faithfully

C. Darwin.

P.S. Is it not a most curious fact that the water at such profound depths, & under such a vast pressure, should retain Oxygen for the respiration of the animals mentioned by you?

¹ From a Ms. copy in the General Library, British Museum (Natural History), Wallich papers.

² Wallich's work was not, in fact, referred to in the later editions of the *Origin*.

(Letter 41)

[*Charles Darwin to George Charles Wallich*]¹

Down, Beckenham, Kent.

Mar 28, 1882.

My dear Sir,

You expressed quite correctly my views where you say that I had intentionally left the question of the Origin of Life uncanvassed as being altogether *ultra vires* in the present state of our knowledge, & that I dealt only with the manner of succession. I have met with no evidence that seems in the least trustworthy, in favour of so called Spontaneous generation. I believe that I have somewhere said (but cannot find the passage)² that the principle of continuity renders it probable that the principle of life will hereafter be shown to be a part, or consequence of some general law; but this is only conjecture and not science. I know nothing about the Protista, and shall be very glad to read your Lecture when it is published, if you will be so kind as to send me a copy.

I remain, my dear Sir,

Yours very faithfully

[Signed] Charles Darwin.

¹ From a Ms. copy in the General Library, British Museum (Natural History), Wallich Papers.

² Darwin's views on the origin of life are given in Appendix VIII.

W. AND J. BURROW, LTD.

The following letter from Darwin to W. and J. Burrow Ltd., of Malvern, was discovered by Mr. Philip Darwin and is published here by kind permission of Messrs. Schweppes Ltd. of which W. and J. Burrow are a subsidiary company.

(Letter 42)

[*Charles Darwin to W. & J. Burrow Ltd.*]¹

Down, Beckenham, Kent.

July 18, 1881

Dear Sir,

W^d you be so good as to send me as usual a case of your Soda Water—I enclose a Card of Returns & my Butler will despatch today another case.

Dear Sir,

Yours faithfully,

Ch. Darwin.

¹ Ms. in the possession of Messrs. Schweppes Ltd.

APPENDIX I

BIBLIOGRAPHY OF PUBLISHED DARWIN LETTERS

The majority of Darwin's published letters will be found in the following works:

The life and letters of Charles Darwin, edited by Francis Darwin (London, 1887). [Abbreviated as *L. & L.*]

More letters of Charles Darwin, edited by Francis Darwin and A. C. Seward (London, 1903). [Abbreviated as *M.L.*]

Emma Darwin, wife of Charles Darwin; a century of family letters, edited by H. E. Litchfield. (Privately printed, Cambridge, 1904. Abridged published edition London, 1915.)

Charles Darwin and the voyage of the Beagle, edited and introduced by Nora Barlow (London, 1945).

The autobiography of Charles Darwin 1809-1882, edited by Nora Barlow (London, 1958).

Small collections or single letters from Darwin will be found in the following:

Extracts from letters addressed to Professor Henslow by C. Darwin, Esq. (for Private Distribution, Cambridge, 1835).

'Obituary of Charles Robert Darwin', by J. H. Balfour. *Trans. & Proc. Bot. Soc. Edin.*, 14, 286 (1883) [to I. Anderson-Henry, 20 Jan. 1863 (extracts)].

'Letters from C. Darwin, Esq., to A. Hancock, Esq. Communicated by John Hancock, Esq.'

- Nat. Hist. Trans. of Northumberland, Durham, and Newcastle on Tyne*, 8, 270 (1884-89).
- 'Some letters from Charles Darwin to Alfred Russel Wallace'. *Christ's College Magazine*, Cambridge, 23, 214 (1909).
- 'Darwins brevveksling med Professor Japetus Steenstrup.' Joh. Steenstrup. *Tilskueren*, København 1909 (1te Halvbind), 217. [To J. Steenstrup, 28 July, 1881.]
- 'The Essex field club. Reports of meetings. Ordinary meeting (571st meeting). Saturday, 27th October 1923.' *The Essex Naturalist*, 21, 14 & pl. IV, (1927). [To William Cole 6 Jan. 1880, 17 Feb. 1880.]
- 'Breve til og fra J. G. Forchhammer. III. J. G. Forchhammer og Charles Darwin 1849-1850.' Udgivne af Ad. Clement. *Museum de minéralogie et de géologie de l'université de Copenhague. Miscellanées No. 6* (København, 1926). [To J. G. Forchhammer 25 Sept. 1849, 12 Nov. 1849, 1 Dec. 1849, 20 May 1850.]
- 'A Priceless Darwin Letter.' Henry Fairfield Osborn, *Science*, 64, 476 (1926) [to T. H. Huxley, 24 Nov. 1859.]
- 'Death-bed letter. Darwin's reply to a correspondent', *Sunday Times*, 20 Jan. 1929, p. 19. [To Symington Grieve, 22 March 1882.]
- 'Om Sven Nilssons engelska förbindelser (Lyll, Darwin och Lubbock).' S. Lindroth, *Lychnos* 1948-9, 144 (Uppsala, 1950). [To Hooker 19 Aug. 1868; to Nilsson 31 Oct. 1868, 5 Jan. 1869. cf. *Descent of Man*, 1, 288.]
- 'Three unknown Darwin letters.' A. Portman. *Lychnos* 1948-9, 206 (Uppsala, 1950). [To Wilhelm Dunker, 20 Sept. 1850, April 5, 22, 1851, June 2, 1851.]
- 'Three unpublished letters from Charles Darwin to Professor John Phillips.' J. M. Edmonds, *Proc. Ashmol. nat. Hist. Soc. 1948-1950*, 25 (Oxford, 1951). [To J. Phillips 11 Nov. 1859, 26 Nov. 1859, 14 Nov. 1860.]
- 'Correspondance de Charles Darwin et d'Alphonse de Candolle.' Charles Baehni, *Gesnerus*, 12, 109 (1955).
- 'Quatro Cartas Inéditas de Charles Darwin para Francisco D'Arruda Furtado'. C. N. Tavares, *Revista da Faculdade de Ciências de Lisboa* (2), 5, 277 (1957).
- 'Nieznaný List Darwina.' W. Slabczynski, *Kosmos A.*, 8, 379 (Warszawa, 1958). [To Paul Edmund Strzelecki, 1845.]
- Catalogue of books*, No. 149, 1959. Horace G. Commin Ltd., 100 Old Christchurch Road, Bournemouth. Item 286 [to ? Charles Murchison, 18 June c. 1864.]
- 'Charles Darwin a český Darwinismus,' B. Matoušková. *Vedecká kniha*, 1, 2 (Praha, 1959). [To Emil Holub, 4 February 1882.]
- 'Una lettera inedita di Carlo Darwin.' P. Leonardi, *Ann. Univ. Ferrara*, N.S. Sez. IX (Geol. & Mineral.) (Ferrara, 1959) 3, 71. [To ?, 10 April 1874.]

(See also *Addendum* on page 66.)

A few letters from Darwin were published in the following works, arranged here in order of date of publication.

Life, letters and journals of Sir Charles Lyell, edited by Mrs Lyell (London, 1881).

Louis Agassiz; his life and correspondence, edited by Elizabeth Cary Agassiz (London, 1885).

The life and letters of Adam Sedgwick, by John Willis Clark (London, 1890).

Letters of Asa Gray, edited by Jane Loring Gray (London, 1893).

The life of Sir Richard Owen, by Richard Owen (London, 1894).

The naturalist of the sea-shore; the life of Philip Henry Gosse, by Edmund Gosse (London, 1896).

- Life and letters of Thomas Henry Huxley*, by Leonard Huxley (London, 1900).
Charles Darwin and the Origin of species, by E. B. Poulton (London, 1909). [Letters to Roland Trimen.]
Letters and recollections of Alexander Agassiz, edited by G. R. Agassiz (London, 1913).
Life of Sir John Lubbock, Lord Avebury, by Horace G. Hutchinson (London, 1914).
Alfred Russel Wallace; letters and reminiscences, by James Marchant (London, etc., 1916).
Life and letters of Sir Joseph Dalton Hooker, by Leonard Huxley (London, 1918).
Samuel Butler, by H. Festing Jones (London, 1919).
Life of Alfred Newton, by A. F. R. Wollaston (London, 1921).
A long life's work; an autobiography, by Sir Archibald Geikie (London, 1924).

APPENDIX II

H.M.S. BEAGLE

H.M.S. *Beagle*, third of the name, was built at Woolwich and launched on 11 May 1820, as a Sloop Brig of 235 tons. In the service of the Hydrographer of the Navy she made three voyages: 1st, 1826-1830, to South America, under the command of Captain Pringle Stokes until his death in 1828 and then of Captain Robert FitzRoy; 2nd, 1831-1836, to South America and round the world under FitzRoy with Darwin; 3rd, 1837-1843 to Australian and New Zealand waters under Captain John Clement Wickham until his retirement for ill health in 1841 and then Captain John Lort Stokes. In 1845 *Beagle* was turned over to Customs Watch duties at Southampton, and from 1851 until 1863 she was a watch vessel at Southend. On 13 May 1870, she was sold at public auction, Messrs. Murray & Trainer, auctioneers, for £525. She appears to have been bought by the Japanese Government, for according to a note in *Nature* of 8 March 1888 (37, 443), quoting the *Japan Weekly Mail* she was then in use as a training ship at Yokosuka.

Through the courtesy of Mr Frank Carr, Director of the National Maritime Museum, information was requested from Tokio, where Mr Basil Greenhill of the British Embassy Staff was so kind as to make inquiries of the Japanese authorities. It is to be feared that the Japanese records were confused, for their information that the ship was built at Liverpool, of 522 tons, and was bought by the Lords of Kagoshima in 1864, cannot apply to the *Beagle*. The following, however, may be correct: that she was transferred to the Japanese Navy in 1870 and renamed the *Kenko*, used as a training ship at Yokosuka, was withdrawn from commission on 12 August 1881, sold in March 1888, and broken up at Urugga at the mouth of Tokio Bay.

For some information on the earlier history of the *Beagle* I am indebted to the Naval Records at the Admiralty and to Miss K. F. Lindsay-Macdougall of the National Maritime Museum.

APPENDIX III

CAPTAIN FITZROY

Robert FitzRoy (1805-1865), afterwards Admiral, Governor of New Zealand (1843-1845), F.R.S. (1851); commanded the *Beagle* in the latter part (1828-1830) of her first voyage and during the whole of the second voyage (1831-1836) when Darwin accompanied him.

It was as joint author with FitzRoy that Darwin published his first paper entitled 'A Letter, Containing Remarks on the Moral State of Tahiti, New Zealand, &c., by Captain R.

Fitz Roy and C. Darwin, Esq., of H.M.S. *Beagle*, dated At Sea, 28 June 1836, which appeared in the *South African Christian Recorder* (printed and published by G. J. Pike, St. George's Street, Cape Town), 2, No. 4, September 1836. This information is derived from the *Catalogue of the library of Charles Darwin now in the Botany School, Cambridge*, compiled by H. W. Rutherford, with an Introduction by Francis Darwin (Cambridge, 1908), p. 20 (where the name of the publication is not given; *Charles Darwin's diary of the voyage of H.M.S. Beagle*, edited by Lady Barlow (Cambridge, 1934), p. xxv (where Lady Barlow gave the name of the publication); and from a paper by Dr Louis Herrman entitled 'Charles Darwin's first publication: a Cape discovery,' published in the *Quarterly Bulletin of the South African Library*, 13, 11 (1958).

Darwin's *Letters to Professor Henslow* were privately printed on 1 December 1835, by Henslow for the members of the Cambridge Philosophical Society without Darwin's knowledge, and extracts from these letters were published under the title of 'Extracts of Letters from C. Darwin, Esq., to Professor Henslow,' in *The Entomological Magazine*, 3, 457 (1836). These printings were earlier than the letter on the Moral State of Tahiti but as they were not initiated by Darwin himself they cannot therefore rank as Darwin's own first publication.

The first paper contributed by Darwin, but not published, was read before the Plinian Society of Edinburgh on 27 March 1827 and recorded in the minutes of that Society, 'Mr Darwin communicated to the Society two discoveries which he had made: 1. That the ova of the *Flustra* possess organs of motion. 2. That the small black globular body hitherto mistaken for the young *Fucus lori* is in reality the ovum of the *Pontobdella muricata*.' (J. H. Ashworth: 'Charles Darwin as a student in Edinburgh', *Proc. Roy. Soc. Edinb.*, 55, 97 (1934); P. H. Jespersen: 'Charles Darwin and Dr Grant', *Lychnos* 1948-1949. (Uppsala, 1950), 159.)

APPENDIX IV

FUEGIA BASKET

Fuegia was one of the Fuegians that Captain FitzRoy captured as hostages for the theft of a boat, and brought back to England in 1830 to teach them Christianity and the use of tools at his own expense, with the ultimate aim of making the fate of shipwrecked mariners less precarious if they should be cast up on the shores where these cannibals lived. One of FitzRoy's chief inducements to undertake the voyage of the *Beagle* on which Darwin sailed was to return these Fuegians to their home; and before the Admiralty had resolved to send out this expedition he had chartered a vessel to do so.

Fuegia was estimated to be 9 years old when taken, and was 'almost as broad as she was high'. A report of her having been seen again came through Captain Sullivan who was in the Falkland Islands in 1842 when a sealer told him that a native woman who spoke some English came on board his ship, (*Journal of researches*, 2nd edition, 1845). As Darwin wrote in his letter dated 1853 that she had been heard of two or three years before, this must have been another, more recent report.

APPENDIX V

CAPTAIN STOKES AND PORT DARWIN

John Lort Stokes (1812-1885), afterwards Admiral. He served as a Midshipman in the *Beagle* on her first voyage from 1826 to 1830 under Captain Pringle Stokes and, after his death in 1828,

under Captain Robert FitzRoy. He served as Assistant Surveyor in the voyage with Darwin, and he sailed a third time in the *Beagle* as Lieutenant and Assistant Surveyor under Captain John Clement Wickham in 1837, and succeeded him in command in 1841 until the ship's return to England in 1843. In his book *Discoveries in Australia* (London, 1846, 2, pp. 5, 6), Stokes wrote under the date 9 September, 1839:

'A wide bay appearing between two white cliffy heads, and stretching away within to a great distance, presented itself to our view. Far to the southward, between the heads, rose a small table-topped hill. As we pulled in towards the eastern entrance point, the river-like appearance began to wear off, more land making its appearance towards the head of the opening. On reaching this point Mr. Forsyth and myself climbed up the cliff, whilst breakfast was cooking. From the summit we had a good view of the bay, and were delighted to find large openings in the south-east and south-west corners of it. The table hill before mentioned, stood on the point between them. To see the eastern part of it, however, it was necessary to cross the opposite point, where some talc slate, pieces of which measured four inches in length, was found embedded in quartz. The point was called in consequence, Talc Head. The other rocks near it were of a fine-grained sandstone:—a new feature in the geology of this part of the continent, which afforded us an appropriate opportunity of convincing an old shipmate and friend, that he still lived in our memory; and we accordingly named this sheet of water Port Darwin.'

APPENDIX VI

THE BEAR AND THE WHALE

This letter refers to the famous analogy to a whale, of a bear swimming with wide open mouth catching insects, which Darwin had used in Chapter VI of the first edition of the *Origin of species*, where he wrote: 'Even in so extreme a case as this, if the supply of insects were constant, and if better adapted competitors did not already exist in the country, I can see no difficulty in a race of bears being rendered, by natural selection, more and more aquatic in their structure and habits, with larger and larger mouths, till a creature was produced as monstrous as a whale.' This illustration formed the object of much criticism.

The reason why Owen asked Darwin for the reference given in Letter 34 soon became apparent. In the *Edinburgh Review* for April 1860 (pp. 487-532) Owen published an anonymous very long, hostile, and speciously disingenuous review of the *Origin of species*, in which the case of the bear came in for its full share of misrepresentation. The following is an example: 'If the ursine species had not been restricted to northern latitudes, we might have surmised this to have been one of the facts connected with "the distribution of the inhabitants of South America", which seemed to Mr. Darwin, when naturalist on board H.M.S. *Beagle*, "to throw some light on the origin of species".'

Darwin's comment on this review in a letter to Lyell of 10 April 1860 (*L. & L.*, 2, 300) was 'It is extremely malignant, clever, and I fear will be very damaging. He is atrociously severe on Huxley's lecture, and very bitter against Hooker. So we three *enjoyed* it together. Not that I really enjoyed it, for it made me uncomfortable for one night; but I have quite got over it to-day. It requires much study to appreciate all the bitter spite of many of the remarks against me; indeed I did not discover all myself. It scandalously misrepresents many parts. He misquotes some passages, altering words within inverted commas. . . . It is painful to be hated in the intense degree with which ————— hates me.'

The case of the bear has had quite a history. To Lyell, Darwin wrote, 1 September 1860 (*L. & L.*, 2, 336): 'Observe, that in my wretched Polar Bear case, I do show the first step by which conversion into a whale "would be easy", "would offer no difficulty"!!'

To William Henry Harvey, Darwin wrote in August 1860 (*M.L.*, 1, 162): 'The bear case has been well laughed at, and disingenuously distorted by some into my saying that a bear could be converted into a whale. As it offended persons, I struck it out in the second edition; but I still maintain that there is no especial difficulty in a bear's mouth being enlarged to any degree useful to its changing habits.'

In James Lamont, author of *Seasons with the Sea-Horses* (London, 1861), Darwin found a supporter and wrote to him, 25 February 1861 (*M.L.*, 1, 179):—'I never expected to see any one so heroically bold as to defend my bear illustration. But a man who has done all that you have done must be bold! It is laughable how often I have been attacked and misrepresented about this bear.'

To the end of his life (*M.L.*, 1, 393) Darwin regretted that he had muffled his bear. From what is now known about the black bear *Ursus americanus* Pallas, its ability to swim and its feeding on fish and insects, there is no reason to doubt either Hearn's observation or Darwin's argument; and the passage in the first edition of the *Origin of species* which Darwin deleted from his subsequent editions has been retained in the *World's Classics* edition (p. 184).

This letter also shows that Darwin's wife kept notes for him.

APPENDIX VII

THE ROYAL SOCIETY'S ROYAL MEDAL

Letter 38 refers to an unsigned editorial by Stainton published in *The Entomologist's Weekly Intelligencer*, No. 2, 12 April 1856 (Price 1d.), on pages 9 and 10 under the title: 'Why did Mr. Westwood get the Royal Medal?' The reason for this question is given in the first paragraph:—'a blandly facetious writer having amused himself with quoting some of our sayings, emphasizing passages not emphasized by us, and then commenting on the Council of the Royal Society awarding the Royal Medal to Mr. Westwood, we feel impelled by that intense Quixotism, which induces us always to rush to the succour of the oppressed, to say a few words on the subject.' Stainton goes on to say that he has been 'a little behind the scenes' and has no hesitation in announcing that it was for the *Introduction to the modern classification of Insects* that John Obadiah Westwood (1805-1893; first Hope Professor of Zoology in the University of Oxford 1861, and never a Fellow of the Royal Society) was awarded the Royal Medal in 1855, a reward, in his opinion, fully deserved for the excellence of that work. Beneath this Editorial is a statement, perhaps precautionary, to the effect that Mr Stainton will *not* be at home Wednesday next, nor on Wednesday the 23rd; he hopes to be at home on Wednesday the 30th.

APPENDIX VIII

DARWIN'S VIEWS ON THE ORIGIN OF LIFE

'It is often said that all the conditions for the first production of a living organism are now present, which could ever have been present. But if (and oh! what a big if!) we could conceive in some warm little pond, with all sorts of ammonia and phosphoric salts, light, heat,

electricity, &c., present, that a proteine compound was chemically formed ready to undergo still more complex changes, at the present day such matter would be instantly devoured or absorbed, which would not have been the case before living creatures were formed.' Darwin, 1871 (*L. & L.*, 3, 18.). It is interesting to compare these views with the heterotrophe hypothesis of A. I. Oparin, and particularly of N. H. Horowitz (*Proc. Nat. Acad. Sci. Wash.* 31, 153 1945).

Four weeks before dictating this letter to Wallich, Darwin had written to Daniel Mackintosh (28 February 1882): 'If it is ever found that life can originate on this world, the vital phenomena will come under some general law of nature.' (*M.L.*, 2, 171.)

ADDENDUM

To the list of small collections and single letters in Appendix 1 add the following:

'Some letters from Charles Darwin to Jeffries Wyman.' A. Hunter Dupree, *Isis*, 42, 104 (Cambridge, Mass., 1951). [To J. Wyman, 3 Oct. 1860, 3 Dec. 1860, 3 Feb. 1861, 8 Oct. ?1863, 2 Feb. 1866.]

'Charles Darwin. The beginnings of Darwinism in Bohemia.' Božena Matoušková, *Folia Biologica*, 5, 169 (Praha, 1959). [To Emil Holub, 23 Jan. 1882.]

'Darwin.' Garcia Castellanos Telasco, *Misc. Acad. Nacional de Ciencias*, No. 36 (Cordoba, Argentine, 1958). [To W. Weyenbergh, 18 Mar. 1879.]