

CONTENTS

<i>List of Illustrations</i>	ix
<i>Preface</i>	xi
<i>Acknowledgments</i>	xix
<i>Chronology</i>	xxiii

PART 1: *Early Life and Voyage of the Beagle*

Foundations	3
The <i>Beagle</i> Voyage	11
Geology	24
Slavery	30
Natural History Collecting	33
Indigenous Peoples	39
Galápagos Archipelago	45

PART 2: *Marriage and Scientific Work*

Notes on Species	53
Marriage	59
A Theory by Which to Work	65
Children	73
Pigeons	80
Barnacles	84
Precursors	90
Independent Discoveries	97

PART 3: Origin of Species

<i>On the Origin of Species</i>	107
Species	117
Selection	122
Difficulties	127
Design and Free Will	133
Variation and Heredity	138
Origin of Life	144
Survival of the Fittest	147
Responses to <i>On the Origin of Species</i>	150
Botany	165

PART 4: Mankind

Human Origins	173
Race	181
Sexual Selection	185
Morality	190
Intellect	193
Instincts	198
Expression of the Emotions	202
Human Society	207

PART 5: On Himself

Religious Belief	217
Health	226
Politics	232
Science	234
Writing	240

Dogs	244
Anti-vivisection	247
Nature	249
Autobiographical	253

PART 6: Friends and Family

Friends and Contemporaries	263
Reflections by His Contemporaries	275
Recollections by His Family	286
Tributes	298
Varia	303
<i>Sources</i>	307
<i>Index</i>	315

Foundations

Nothing could have been worse for the development of my mind than Dr. Butler's school [in Shrewsbury], as it was strictly classical, nothing else being taught except a little ancient geography and history. The school as a means of education to me was simply a blank.

Autobiography, 27

Looking back as well as I can at my character during my school life, the only qualities which at this period promised well for the future, were, that I had strong and diversified tastes, much zeal for whatever interested me, and a keen pleasure in understanding any complex subject or thing. I was taught Euclid by a private tutor, and I distinctly remember the intense satisfaction which the clear geometrical proofs gave me.

Autobiography, 43

Towards the close of my school life, my brother worked hard at chemistry and made a fair laboratory with proper apparatus in the

tool-house in the garden, and I was allowed to aid him as a servant in most of his experiments. He made all the gases and many compounds, and I read with care several books on chemistry, such as Henry and Parkes' *Chemical Catechism*. The subject interested me greatly, and we often used to go on working till rather late at night. This was the best part of my education at school, for it showed me practically the meaning of experimental science. The fact that we worked at chemistry somehow got known at school, and as it was an unprecedented fact, I was nick-named "Gas."

Autobiography, 45–46

The instruction at Edinburgh [University] was altogether by Lectures, and these were intolerably dull, with the exception of those on chemistry by [T. C.] Hope; but to my mind there are no advantages and many disadvantages in lectures compared with reading. Dr. Duncan's lectures on *Materia Medica* at 8 o'clock on a winter's morning are something fearful to remember.

Autobiography, 46–47

During my second year in Edinburgh I attended [Robert] Jameson's lectures on Geology and Zoology, but they were incredibly dull. The sole effect they produced on me was the

determination never as long as I lived to read a book on Geology or in any way to study the science.

Autobiography, 52

A negro lived in Edinburgh, who had travelled with [Charles] Waterton and gained his livelihood by stuffing birds, which he did excellently; he gave me lessons for payment, and I used often to sit with him, for he was a very pleasant and intelligent man.

Autobiography, 51

I also attended on two occasions the operating theatre in the hospital at Edinburgh, and saw two very bad operations, one on a child, but I rushed away before they were completed. Nor did I ever attend again, for hardly any inducement would have been strong enough to make me do so; this being long before the blessed days of chloroform. The two cases fairly haunted me for many a long year.

Autobiography, 48

During the three years which I spent at Cambridge [University] my time was wasted, as far as the academical studies were concerned, as completely as at Edinburgh and at school.

Autobiography, 58

From my passion for shooting and for hunting and when this failed, for riding across country, I got into a sporting set [at Cambridge University], including some dissipated low-minded young men. We used often to dine together in the evening, though these dinners often included men of a higher stamp, and we sometimes drank too much, with jolly singing and playing at cards afterwards. I know that I ought to feel ashamed of days and evenings thus spent, but as some of my friends were very pleasant and we were all in the highest spirits, I cannot help looking back to these times with much pleasure.

Autobiography, 60

No pursuit at Cambridge was followed with nearly so much eagerness or gave me so much pleasure as collecting beetles. It was the mere passion for collecting, for I did not dissect them and rarely compared their external characters with published descriptions, but got them named anyhow. I will give a proof of my zeal: one day, on tearing off some old bark, I saw two rare beetles and seized one in each hand; then I saw a third and new kind, which I could not bear to lose, so that I popped the one which I held in my right hand into my mouth. Alas it ejected some intensely acrid fluid, which burnt my tongue so that I was forced to

spit the beetle out, which was lost, as well as the third one.

Autobiography, 62

When at Cambridge I used to practise throwing up my gun to my shoulder before a looking-glass to see that I threw it up straight. Another and better plan was to get a friend to wave about a lighted candle, and then to fire at it with a cap on the nipple, and if the aim was accurate the little puff of air would blow out the candle. The explosion of the cap caused a sharp crack, and I was told that the Tutor of the College remarked, "What an extraordinary thing it is, Mr Darwin seems to spend hours in cracking a horse-whip in his room, for I often hear the crack when I pass under his windows."

Autobiography, 44–45

I acquired a strong taste for music, and used very often to time my walks so as to hear on weekdays the anthem in King's College Chapel [Cambridge]. This gave me intense pleasure, so that my backbone would sometimes shiver. . . . I am so utterly destitute of an ear, that I cannot perceive a discord, or keep time and hum a tune correctly; and it is a mystery how I could possibly have derived pleasure from music. My musical friends soon

perceived my state, and sometimes amused themselves by making me pass an examination, which consisted in ascertaining how many tunes I could recognise, when they were played rather more quickly or slowly than usual. "God save the King" when thus played was a sore puzzle.

Autobiography, 61–62

In order to pass the B.A. examination, it was, also, necessary to get up Paley's *Evidences of Christianity*, and his *Moral Philosophy*. This was done in a thorough manner, and I am convinced that I could have written out the whole of the *Evidences* with perfect correctness, but not of course in the clear language of Paley. The logic of this book and as I may add of his *Natural Theology* gave me as much delight as did Euclid. The careful study of these works, without attempting to learn any part by rote, was the only part of the academical course which, as I then felt and as I still believe, was of the least use to me in the education of my mind. I did not at that time trouble myself about Paley's premises; and taking these on trust I was charmed and convinced by the long line of argumentation.

Autobiography, 59

Whilst examining an old gravel-pit near Shrewsbury a labourer told me that he had found in it a large worn tropical *Volute* shell, such as may be seen on the chimney-pieces of cottages; and as he would not sell the shell I was convinced that he had really found it in the pit. I told [Professor Adam] Sedgwick of the fact, and he at once said (no doubt truly) that it must have been thrown away by someone into the pit; but then added, if really embedded there it would be the greatest misfortune to geology, as it would overthrow all that we know about the superficial deposits of the midland counties. These gravel-beds belonged in fact to the glacial period, and in after years I found in them broken arctic shells. But I was then utterly astonished at Sedgwick not being delighted at so wonderful a fact as a tropical shell being found near the surface in the middle of England. Nothing before had ever made me thoroughly realize though I had read various scientific books that science consists in grouping facts so that general laws or conclusions may be drawn from them.

Autobiography, 69–70

Before long I became well acquainted with [Professor John Stevens] Henslow, and during

the latter half of my time at Cambridge took long walks with him on most days; so that I was called by some of the dons “the man who walks with Henslow”.

Autobiography, 64

During my last year at Cambridge I read with care and profound interest [Alexander von] Humboldt’s *Personal Narrative*. This work and Sir J. Herschel’s *Introduction to the Study of Natural Philosophy* stirred up in me a burning zeal to add even the most humble contribution to the noble structure of Natural Science. No one or a dozen other books influenced me nearly so much as these two.

Autobiography, 67–68

Considering how fiercely I have been attacked by the orthodox it seems ludicrous that I once intended to be a clergyman. Nor was this intention and my father’s wish ever formally given up, but died a natural death when on leaving Cambridge I joined the *Beagle* as Naturalist.

Autobiography, 57

INDEX

- aboriginals, Australian, 44, 200, 207–8
- Abutilon darwinii*, 169
- The Academy*, obituary of CD in, 300
- adaptation, 65, 66, 70, 124–25, 305; beneficial, 166; and domesticated species, 122; and good of another species, 123; and Lamarck, 90; machinery metaphor for, 125; and morphology, 56, 67, 108–9, 111, 142; neither beneficial nor injurious, 142; number and diversity of inheritable deviations of, 138–39; as produced for good of possessor, 128; usefulness of, 114, 119
- Admiralty, British, 33
- Africa, 26
- Agassiz, Elizabeth Cary, 263
- Agassiz, Louis, 113, 158–59, 234, 263
- agnosticism, 223
- Allen, Grant, 300
- Allingham, William, 275
- Andaman islanders, 174
- Andes Mountains, 26–27
- Anglican Church, 277
- Angracum sesquipedale* (Darwin's orchid), 166–67
- animals: affinities of, 54; checks on increase of, 57–58; classification of, 54; and death, 200; descent of, 144; domesticated, 53, 83, 122, 125, 138, 139, 140, 185, 186, 211 (*see also* mankind, power over selection); domesticated *vs.* wild, 40; extinct, 26; female, 185, 186–87; and human intellect, 193; humanity to, 247–48; and human moral sense, 190, 191;

- animals (*cont.*)
instincts of, 54; mankind's descent from, 304; migration of, 130–31; one no higher than another, 54; progenitors of, 144; and races of men, 181; and self-consciousness, 200; stronger as extirpating weaker, 208; and struggle for existence, 58; suffering of, 219–20; warring among, 66. *See also* birds; population; species
- ants, 128–29, 198–99
- ape(s), 74; brain of, 174; and human intellect, 193; mankind as descended from, 157, 158, 161, 177, 299, 305; and mirrors, 74, 204–5. *See also* chimpanzees; mandrills; monkeys; orangutans
- architect, 136–37
- Argus pheasant, 187
- aristocracy, 233
- Aristotle, 238, 239
- armadillos, 69
- Ascension Island, 22
- astronomy, 134–35, 136
- asylums, 210
- atheism, 133, 164, 223, 265
- atolls, 29
- Austen, Jane, 292
- Australia, 44, 207, 208
- Australian settlers, 174
- The Autobiography of Charles Darwin* (C. Darwin): barnacles in, 84, 89; *Beagle* voyage in, 13, 14–15, 22–23; botany in, 167, 169; children in, 79; design in, 133; divergence with modification in, 70; education in, 3–10; embryology in, 164; emotion in, 202, 203; friends and contemporaries in, 263–64, 265, 266, 268, 269–73, 274; geology in, 24, 28–29; health issues in, 226; human origins in, 173; marriage in, 63–64; personal life in, 253–58, 259; precursors in, 90, 91, 95–96; religious belief in, 217–20, 222–23, 225; science in, 234–35, 239; slavery in, 30–31; species in, 53, 57, 58, 69; Wallace in, 102, 116; writing habits in, 241–42
- Aveling, E. B.: CD's 13 Oc-

- tober 1880 letter to, 223–24; *The religious views of Charles Darwin*, 224–25
- Avestruz Petise, 33–34
- Babbage, Charles, 264
- baboons, 56, 258
- Back to Methuselah* (Shaw), 302
- Baconian principles, 53
- Bahia, Brazil, 30
- Bajada [Baja de Entre Rios, River Parana, Argentina], 25
- barnacles, 84–89, 152, 241
- barn-owl, white, 65
- Bartlett, Abraham D., CD's 5 January [1870] letter to, 202–3
- Bateman, James, 166
- Bates, H. W., 156, 241
- Batrachians, 34
- Bay of San Blas [south of Bahia Blanca, Argentina], 35
- Beagle*. See *HMS Beagle*
- Beagle Channel, South America, 39
- Beagle Diary* (C. Darwin), 39, 41–42
- bears, black, 111
- Beaufort, Francis, 33
- beauty, 128, 181, 186, 187
- bees, 110, 190–91, 199–200
- beetles, 6–7, 21, 76–77, 108, 295, 301
- Bell, Thomas, 103
- Benchuca* bug, 19
- Bible, 217, 218, 224, 279–80, 283, 284, 299
- birds, 109, 115, 140, 252; and courtship, 185–87, 188; and Galápagos Archipelago, 46, 48, 49, 65; and instincts, 200; species of, 53–54; tameness of, 46; taxidermy of, 5. See also animals
- bivalves, 133
- Blyth, Edward, 97
- botany, 165–69
- Brachinus crepitans*, 76
- Brachiopod shells, genera of, 120, 121
- Bradlaugh, Charles, CD's 6 June 1877 letter to, 192
- Bradley, G. G., 298
- brain, 55, 174, 182–83, 201
- Brazil, 15, 32, 217–18
- breeders. See animals, domesticated; mankind, power over selection; plants, domesticated
- Bressa prize (Turin Society, Italy), 238
- British Association for the Advancement of Science, 157, 161

- British colonies, 208
British empire, xiii
Brodie, Sir Benjamin, 157
Brown, Robert, 57, 263
Bryan, William Jennings, 304–5
Büchner, Georg, 200
buds, 139, 141
Buffon, Georges-Louis
 Leclerc, Comte de, 95
Butler, Samuel (author), 263–64, 275
Butler, Samuel (headmaster, Shrewsbury School), 3
butterflies, 35
Button, Jemmy (Orundell-ico), 41, 42
Byron, Lord, 257
- California, gold rush in, 208–9
Callithrix sciureus, 202–3
Cambrian formation, 163
Cambridge University, 5–6, 7–10
Cameron, Julia Margaret, 216, 256
Candolle, Alphonse de, 66, 118; CD's 6 July 1868 letter to, 174
Candolle, Augustin Pyramus de, 57
Cape of Good Hope, 207
Cape Verde islands, 24
Carlyle, Thomas, 264
Carus, J. V., letter to CD, 15
 November 1866, 161
cats, 110, 134
celibacy, 192
cells, 139, 140
Chambers, Robert, *Vestiges of the Natural History of Creation*, 91, 93–94, 154
chance, 134, 139
Chapman, John, CD's 16 May [1865] letter to, 230–31
character/personality, 186–87, 255, 258; of CD (see under Darwin, Charles Robert); of E. A. Darwin, 265
chastity, 191–92
Chemical Catechism (Henry and Parkes), 4
chemistry, CD's love for, 3–4, 150, 265
Chile: barnacles from, 84; *Benchuca* of, 19; coral reefs in, 28–29; earthquake in, 18–19; volcanic eruption in, 27
chimpanzees, 204. *See also* apes
Chonos Archipelago, Chile, 35

- Christianity, 43, 218–19, 224, 265, 276, 283
civilization, 42, 183, 195, 255; advance of, 209; and arts, 193–94, 211; and Australian aborigines, 44; and chastity, 192; inheritance of wealth and property in, 211; and New South Wales, Australia, 208; preservation of weak members of, 210–11; and progress, 213–14
Civil War, American, 232, 233
classics, 78–79
clergy, 280; and CD's possible occupation, 12, 16, 21, 217
climatal change, 130
clovers, 110
Clytus mysticus, 76
co-adaptations, 108
Cobbe, Frances Power, 248; CD's 23 March [1870] letter to, 190
cocoa-nut, 20
Coleridge, Samuel Taylor, 254, 257
collecting, 6, 11, 22, 33–38, 76–77, 80, 86, 88, 165, 301
Collier, John, CD's 16 February 1882 letter to, 258
colonialism, 32, 207
comets, 136
commerce, xiii
Concepción, Chile, 18–19
Concholepas, 84
Coniston, Lake District, 293
consciousness, 137
contraception, 192
controversies, CD's avoidance of, 256
Conway, Moncure Daniel, 276
Copernicus, Nicolai, 299, 304
Copley Medal of the Royal Society, 277
coral reefs, 28–29, 239
Covington, Syms: CD's 23 November 1850 letter to, 88, 208–9; CD's 30 March 1849 letter to, 86–87
creation, 113, 117; and Foote, 303; individual, 67; and Kingsley, 144; and Lyell, 285; and Powell, 94–95; special, 304; and Spencer, 94; as term, 145. *See also* God/Creator

- Croll, James: CD's 19 September 1868 letter to, 163; CD's 31 January [1869] letter to, 163
- Cuvier, Georges, 238–39
- daisies *vs.* dandelions, 165
- Dana, J. D.: CD's 8 October 1849 letter to, 87; CD's 29 September [1856] letter to, 80
- Darrow, Clarence, 305
- Darwin, Anne, 74–75
- Darwin, Bernard Richard Meirion (grandson), 295
- Darwin, Caroline Sarah (sister): CD's 30 March–12 April 1833 letter to, 39–40; CD's 13 November 1833 letter to, 18; CD's 13 October 1834 letter to, 18; CD's 10–13 March 1835 letter to, 18–19; CD's 29 April 1836 letter to, 240
- Darwin, Charles Robert: appearance of, 16, 275, 276, 278–79, 282, 283, 295; birth of, 303; burial of, xiv, 298; caricature of, from *The Hornet*, 172; character of, 3, 12, 258, 277, 278, 281–83, 294; children of, xiv, 73–79, 286–88; daguerreotype of, 52; death of, 68, 297; education of, 3–10; last will and testament of, 259; life and habits of, 280, 281, 286–97; photograph by Cameron, 216, 256; photograph by Elliott and Fry, 262; photograph by Maull and Fox, 106; tastes of, 3, 7–8, 79, 254–55, 257, 258; tributes to, 298–302; watercolor sketch by Richmond, 2
- LETTERS: to E. B. Aveling, 13 October 1880, 224; to Abraham D. Bartlett 5 January [1870], 202–3; to Charles Bradlaugh, 6 June 1877, 192; to Alphonse de Candolle, 6 July 1868, 174; from J. V. Carus, 15 November 1866, 161; to John Chapman, 16 May [1865], 230–31; to Frances Power Cobbe, 23 March [1870], 190; to John Collier, 16 February 1882, 258; to Syms Covington, 30 March 1849, 86–87; to Syms Covington, 23 Novem-

- ber 1850, 88, 208–9; to James Croll, 19 September 1868, 163; to James Croll, 31 January [1869], 163; to J. D. Dana, 8 October 1849, 87; to J. D. Dana, 29 September [1856], 80; to Caroline Sarah Darwin, 30 March–12 April 1833, 39–40; to Caroline Sarah Darwin, 13 November 1833, 18; to Caroline Sarah Darwin, 13 October 1834, 18; to Caroline Sarah Darwin, 10–13 March 1835, 18–19; to Caroline Sarah Darwin, 29 April 1836, 240; to Emily Catherine Darwin, 22 May–14 July 1833, 234; to Emily Catherine Darwin, 22 May [–14 July] 1833, 31–32; to Emily Catherine Darwin, 6 April 1834, 42; to Emily Catherine Darwin, 14 February 1836, 21, 207; from Emma Wedgwood Darwin, 21–22 November 1838, 61; from Emma Wedgwood Darwin, 23 January 1839, 61–62; from Emma Wedgwood Darwin, c. February 1839, 62; to Emma Wedgwood Darwin, 5 July 1844, 68; to Emma Wedgwood Darwin, 20–21 May 1848, 63; to Emma Wedgwood Darwin, [23 April 1851], 75; to Emma Wedgwood Darwin, [28 April 1858], 251–52; from Erasmus Alvey Darwin, 23 November [1859], 150–51; to Horace Darwin, [15 December 1871], 237; to Robert Waring Darwin, 31 August [1831], 11–12; to Robert Waring Darwin, 8 February–1 March [1832], 13–14; to Robert Waring Darwin, 10 February 1832, 14; to Susan Elizabeth Darwin, 14 July–7 August [1832], 16; to Susan Elizabeth Darwin, 4 August [1836], 21; to William Erasmus Darwin, 3 October [1851], 75; to Anton Dohrn, 4 January 1870, 236; to Anton Dohrn, 15 February 1880, 238; to *Entomolo-*

Darwin, Charles Robert —
LETTERS (cont.)

gist's Weekly Intelligencer, 25 June 1859, 76–77; to T. H. Farrer, 29 October [1868], 141; to Henry Fawcett, 18 September [1861], 235, 240; to Robert FitzRoy, [4 or 11 October 1831], 13; to Robert FitzRoy, [19 September 1831], 33; to Robert FitzRoy, 1 October 1846, 255; to John Fordyce, 7 May 1879, 223; to W. D. Fox, May [1832], 25; to W. D. Fox, [12–13] November 1832, 16; to W. D. Fox, [9–12 August] 1835, 21; to W. D. Fox, 15 February 1836, 266; to W. D. Fox, [7 June 1840], 73; to W. D. Fox, [24 April 1845], 91; to W. D. Fox, 17 July [1853], 78–79; to W. D. Fox, 3 October [1856], 80; to W. D. Fox, 8 February [1857], 71, 75–76; to W. D. Fox, 13 November [1858], 76, 228; to W. D. Fox, 24 [March 1859], 71, 255; from W. D. Fox, 28 November [1864],

277; to Francis Galton, 23 December [1869], 196; to Asa Gray, 20 July [1857], 71; to Asa Gray, 4 July 1858, 99; to Asa Gray, 11 November [1859], 72; to Asa Gray, [8 or 9 February 1860], 127; to Asa Gray, 3 April [1860], 127; to Asa Gray, 22 May [1860], 133–34; to Asa Gray, 3 July [1860], 135, 159; to Asa Gray, 22 July [1860], 267; to Asa Gray, 10 September [1860], 267; to Asa Gray, 5 June [1861], 232; to Asa Gray, 10–20 June [1862], 77, 162, 232–33; to Asa Gray, 23[–24] July [1862], 167; to Asa Gray, 28 May [1864], 255; to Asa Gray, 28 January 1876, 257; to Albert Gunther, 12 April [1874?], 37–38; from J. S. Henslow, 24 August 1831, 11; to J. S. Henslow, [5 September 1831], 12; to J. S. Henslow, [26 October–] 24 November 1832, 34; to J. S. Henslow, 18 April 1835, 249; to J. S.

- Henslow, 6 May 1849, 227; to J. M. Herbert, 2 June 1833, 32; to Frithiof Holmgren, 18 April 1881, 247–48; to J. D. Hooker, [11 January 1844], 90; to J. D. Hooker, 11 January 1844, 65; to J. D. Hooker, [7 January 1845], 91; to J. D. Hooker, [16 April 1845], 165; to J. D. Hooker, 11–12 July 1845, 68; to J. D. Hooker, 10 September 1845, 68–69; to J. D. Hooker, [3 September 1846], 165; to J. D. Hooker, [2 October 1846], 84–85; to J. D. Hooker, [6 November 1846], 85; to J. D. Hooker, 10 May 1848, 85, 86; to J. D. Hooker, 13 June [1850], 88; to J. D. Hooker, 5 June [1855], 165; to J. D. Hooker, 13 July [1856], 70; to J. D. Hooker, 15 January [1858], 227–28; to J. D. Hooker, [29 June 1858], 76, 99; to J. D. Hooker, 13 [July 1858], 100–101; to J. D. Hooker, 1 September [1859], 228; to J. D. Hooker, 30 May [1860], 158–59; to J. D. Hooker, 4 December [1860], 168; to J. D. Hooker, 15 January [1861], 269; to J. D. Hooker, 23 [April 1861], 229; to J. D. Hooker, 19 June [1861], 165; to J. D. Hooker, 30 January [1862], 166–67; to J. D. Hooker, 9 February [1862], 235; to J. D. Hooker, 9 [April 1862], 229–30; to J. D. Hooker, 24 December [1862], 233; to J. D. Hooker, 15 February [1863], 168; to J. D. Hooker, 26 [March 1863], 236; to J. D. Hooker, [29 March 1863], 145; to J. D. Hooker, [27 January 1864], 168; to J. D. Hooker, 26[–27] March [1864], 230; from J. D. Hooker to CD, [11 June 1864], 279; to J. D. Hooker, 9 February [1865], 252; to J. D. Hooker, [29 July 1865], 270; to J. D. Hooker, 25 December [1868], 269; to J. D. Hooker, 16 January

Darwin, Charles Robert

—LETTERS (*cont.*)

[1869], 163; to J. D. Hooker, 1 February [1871], 145–46; to J. D. Hooker, 23 July [1871], 169; to J. D. Hooker, 18 January [1874], 237–38; to Leonard Horner 29 August [1844], 29; from A. von Humboldt, 18 September 1839, 279; to T. H. Huxley, 26 September [1857], 71; to T. H. Huxley, 2 June [1859], 71–72; to T. H. Huxley, 27 November [1859], 80–81; to T. H. Huxley, 28 December [1859], 152; to T. H. Huxley, 3 July [1860], 159, 270; to T. H. Huxley, [5 July 1860], 158; to T. H. Huxley, 22 November [1860], 160; to T. H. Huxley, 22 February [1861], 228–29; to T. H. Huxley, 30 January [1868], 202; to Henrietta Darwin Litchfield, [8 February 1870], 242; to Henrietta Darwin Litchfield, [March] 1870, 243; to Henrietta Darwin Litchfield, 20 March 1871,

179–80; to Henrietta Darwin Litchfield, 4 September 1871, 63; to Henrietta Darwin Litchfield, 4 September [1871], 78; to Henrietta Darwin Litchfield, 4 January 1875, 247; to John Lubbock, 5 September [1862], 77, 235; to Charles Lyell, 30 July 1837, 53–54; to Charles Lyell, [14] September [1838], 54; to Charles Lyell, [2 September 1849], 87; to Charles Lyell, 4 November [1855], 81; from Charles Lyell, 1–2 May 1856, 71, 80; to Charles Lyell, 18 [June 1858], 98; to Charles Lyell, [25 June 1858], 98–99; to Charles Lyell, 20 September [1859], 72; to Charles Lyell, [10 December 1859], 151–52; to Charles Lyell, 10 April [1860], 92, 155, 156, 272; to Charles Lyell, 4 May [1860], 174, 209; to Charles Lyell, 17 June [1860], 124, 134–35; to Charles Lyell, 20 [June

- 1860], 165; to Charles Lyell, 3 October [1860], 120, 124; to Charles Lyell, 14 November [1860], 168; to Charles Lyell, [1 August 1861], 136; to Charles Lyell, 12–13 March [1863], 95; from Charles Lyell, 15 March 1863, 161; from Charles Lyell, 16 January 1865, 285; to Victor A. E. G. Marshall, 7 [September] 1879, 272; to Frederick McDermott, 24 November 1880, 224; to N. A. von Mengden, 8 April 1879, 223; to J. F. T. Muller, [before 10 December 1866], 267; to John Murray, 14 June [1859], 240; to John Murray, [3 November 1859], 150; to William Ogle, 6 March [1868], 141; to William Ogle, 22 February 1882, 238–39; to Baden Powell, 18 January [1860], 91–92; to G. J. Romanes, 7 March 1881, 197; from Adam Sedgwick, 24 November 1859, 151; from A.R. Wallace, 2 July 1866, 125; to A. R. Wallace, 22 December 1857, 97, 173, 235; to A. R. Wallace, 18 May 1860, 157; to A. R. Wallace, 28 [May 1864], 181, 233; to A. R. Wallace, 15 June [1864], 182; to A. R. Wallace, 5 July [1866], 147–48; to A. R. Wallace, 27 March [1869], 142, 175; to A. R. Wallace, 14 April 1869, 175; to A. R. Wallace, 20 April [1870], 273; to Julia Wedgwood, 1 July [1861], 135–36; to C. T. Whitley, 8 May 1838, 59
- WORKS: *The Autobiography of Charles Darwin*, 3–10, 13, 14–15, 22–23, 24, 28–29, 30–31, 53, 57, 58, 63–64, 69, 70, 79, 84, 89, 90, 91, 95–96, 102, 116, 133, 164, 167, 169, 173, 202, 203, 217–20, 222–23, 225, 226, 234–35, 239, 241–42, 253–58, 259, 263–64, 265, 266, 268, 269–73, 274; *Beagle Diary*, 39, 41–42; *The Descent of Man* (1871), 142, 175, 176–78, 179, 182–84, 185–88, 190–92, 193–97,

- Darwin, Charles Robert
—WORKS (*cont.*)
200, 203, 209–13, 220–22, 233, 236–37, 242, 243, 246, 258–59, 299; *The Descent of Man* (1874), 188–89, 200–201, 213–14; *The Expression of the Emotions in Man and Animals*, 74, 137, 204–6, 245–46; *Journal*, 61, 70, 88; *Journal of Researches* (1839), xii, 15–18, 19–21, 25–28, 31, 33–37, 44, 45–48, 54, 207–8, 218, 249–51; *Journal of Researches* (1845), 49; “A letter, containing remarks,” 1836, 40, 43–44; *Notebook B*, 54, 55; *Notebook C*, 55; *Notebook D*, 56, 57–58; *Notebook E*, 181; *Notebook M*, 56, 256; *Notebook N*, 57; *On the Origin of Species* (1859), xi, xii, xvi, 82–83, 89, 95–96, 102, 107–16, 117–20, 121, 122–23, 127, 128–32, 138–39, 142, 144, 150–64, 173, 198–200, 222, 240, 241, 277–78, 287–88, 294, 298–99, 300; *On the Origin of Species* (1861), 92–95, 144–45; *On the Origin of Species* (1869), 142; *On The Tendency of Species to Form Varieties; and on the Perpetuation of Varieties and Species by Natural Means Of Selection*, 100; *On the Various Contrivances by which British and Foreign Orchids are Fertilised by Insects*, 124–25, 165–67; *Ornithological Notes*, 48; Preface to *Life of Erasmus Darwin*, 275; *The Variation of Animals and Plants under Domestication*, 83, 125–26, 136–37, 139–41, 142, 148–49
- Darwin, Charles Waring (son), 75–76; death of, 76
- Darwin, Emily Catherine (sister): CD’s 22 May–14 July 1833 letter to, 234; CD’s 22 May [–14 July] 1833 letter to, 31–32; CD’s 6 April 1834 letter to, 42; CD’s 14 February 1836 letter to, 21, 207
- Darwin, Emma Wedgwood (wife), 235; and backgammon, 257; on CD and religion, 223, 225; CD’s 5 July 1844 letter to, 68; CD’s 20–21 May 1848 letter to, 63;

- CD's [23 April 1851] letter to, 75; CD's [28 April 1858] letter to, 251–52; and CD's enjoyment of nature, 251–52; CD's love for, 61–64; and children, 287; and death of Anne, 75; and garden walks, 288; health of, 227; letter to CD, 21–22 November 1838, 61; letter to CD, 23 January 1839, 61–62; letter to CD, c. February 1839, 62; letter to Francis Darwin about CD's religious statement in *Autobiography*, 225; marriage to CD, xiv, 59–64; and music, 291; and publication of CD's species theory, 68; and visit of Mrs. Huxley, 228–29
- Darwin, Erasmus (grandfather), 95, 256, 265, 278; *Zoonomia*, 90, 93
- Darwin, Erasmus Alvey (brother), 3–4, 56, 92, 219, 237, 264, 265; 23 November [1859] letter to CD, 150–51
- Darwin, Francis (son), 76–77, 89, 160, 240–41, 244–45, 296; letter from Emma Wedgwood Darwin to, 225; *The Life and Letters of Charles Darwin*, 258, 286–87, 288–93, 294–96, 297
- Darwin, George Howard (son), 75, 227, 237, 238, 296–97
- Darwin, Henrietta Emma (daughter). *See* Litchfield, Henrietta Emma Darwin (daughter)
- Darwin, Horace (son), 76–77; CD's [15 December 1871] letter to, 237
- Darwin, Leonard (son), 76–77, 227, 286, 288, 294
- Darwin, Robert Waring (father), 22, 217, 219, 253–54; CD's 31 August [1831] letter to, 11–12; CD's 8 February–1 March [1832] letter to, 13–14; CD's 10 February 1832 letter to, 14; objections of to CD's *Beagle* journey, 11–12
- Darwin, Susan Elizabeth (sister): CD's 14 July–7 August [1832] letter to, 16; CD's 4 August [1836] letter to, 21
- Darwin, Susanna Wedgwood (mother), 253

- Darwin, William Erasmus
(son), 73–74; CD's 3 October [1851] letter to, 75; daguerreotype of, 52
- Daubeny, C.G.B., 157
- death, 210, 250, 252, 288
- deduction, 58, 239, 273
- Demosthenes, 236
- Descartes, René, 273
- descent, 68; and Lyell, 271; theory of, 92. *See also* natural selection
- descent, of mankind, 56, 93, 175, 258–59, 304; from apes, 157, 158, 177, 299, 305; from lower form, 176–78
- descent, with modification, xiii, 65–72, 129, 131
- The Descent of Man* (1871) (C. Darwin), 299; adaptation in, 142; descent in, 176–78, 258–59; dogs in, 246; emotions in, 203; instincts in, 200; intellect in, 193–96; morality in, 190–92; natural selection in, 175; race in, 182–84; reception of, 179; religion in, 220–21; science in, 236–37; sexual selection in, 185–88; slavery in, 233; society in, 209–13; style of, 242, 243
- The Descent of Man* (1874) (C. Darwin): instincts in, 200–201; sexual selection in, 188–89; society in, 213–14
- design, xvi, 113, 133–37, 164. *See also* God/Creator; nature
- De Vries, Hugo, 276
- diamond beetle, 21
- disease, 141, 181, 210
- Disraeli, Benjamin, 161
- dogs, 17, 59, 134, 183, 200, 203, 221, 244–48, 253, 258, 293
- Dohrn, Anton, 276; CD's 4 January 1870 letter to, 236; CD's 15 February 1880 letter to, 238
- D'Orbigny, Alcide, 34
- doves, 46
- Drosera, 167–68
- Duncan, Andrew, 4–5
- Dyster, Frederick Daniel, 158
- earth, 252, 304; age of, 67, 163; destruction of, 222. *See also* geology
- earthquakes, 27–28
- earthworms, 289
- Edinburgh Hospital, operation, 5
- Edinburgh Review*, 155

- Edinburgh University, 6
education, 3–10, 23, 78–79,
214
Eliot, George, *Silas Marner*,
291
Elwin, Whitwell, 81; letter
to John Murray, 21 Sep-
tember 1870, 176
embryology, 112–13, 164
emigration, 209, 210, 212
Emma Darwin (Litchfield),
61
emotions, 202–6, 221, 244
Engels, Friedrich, 162, 303
England, 31–32, 40, 207
*Das entdeckte Geheimnis der
Natur* (Spengel), 57
*Entomologist's Weekly Intel-
ligencer*, CD's 25 June
1859 letter to, 76–77
*An Essay on the Principle of
Population* (Malthus), 58
"Essays" (Spencer), 94
"Essays on the spirit of in-
ductive philosophy,
unity of worlds, and the
philosophy of creation"
(Powell), 94–95
Euclid, 3, 8
Europe, 123, 212
Europeans, 41, 207
Evidences of Christianity
(Paley), 8–9
evolution, xi, xii, xvi, 223,
302, 303. *See also* de-
scent, with modification
The Excursion (Words-
worth), 254
experimentation, xiii, 4,
235, 236, 294. *See also*
observation
*The Expression of the Emo-
tions in Man and Animals*
(C. Darwin), 74, 137,
204–6, 245–46
eye, 127
facial expressions, 202,
204–5
facts, false, 237
Falconer, Hugh, 276–77
famine, 57–58
Farrer, T. H., CD's 29 Octo-
ber [1868] letter to, 141
Fawcett, Henry, CD's 18
September [1861] letter
to, 235, 240
feathers, 127
fertilisation, 57, 110, 139,
165–66, 169
Ffinden, Rev. George, 277
finches, 46, 82
Fitzroy, Mary, 255
FitzRoy, Robert, xi, 11, 12,
13, 15, 16, 28, 37, 39, 42,
161, 266; CD's [19 Sep-
tember 1831] letter to,
33; CD's [4 or 11 Octo-

- FitzRoy (*cont.*)
ber 1831] letter to, 13;
CD's 1 October 1846 letter to, 255; "A letter, containing remarks," 1836, 40, 43–44; and slavery, 30–31
flowers, 15, 21, 57, 110
Foote, G. W., 304
Forbes, Edward, 91
Forbes, J. D., 160
Fordyce, John, CD's 7 May 1879 letter to, 223
forests, 217–18
Formica sanguinea, 198–99
fossils, 22, 25–26, 54, 69, 88, 150
Fox, William Darwin (cousin), 244, 266, 277; CD's May [1832] letter to, 25; CD's [12–13] November 1832 letter to, 16; CD's [9–12 August] 1835 letter to, 21; CD's 15 February 1836 letter to, 266; CD's [7 June 1840] letter to, 73; CD's [24 April 1845] letter to, 91; CD's 17 July [1853] letter to, 78–79; CD's 3 October [1856] letter to, 80; CD's 8 February [1857] letter to, 71, 75–76; CD's 13 November [1858] letter to, 76, 228; CD's 24 [March 1859] letter to, 71, 255; letter to CD, 28 November [1864], 277
foxes, 35, 48, 65
French government, 34
Freud, Sigmund, 304
Fuegia Basket (Yokcushla), 42
Fuegians, 39–40, 44, 178
Galápagos Archipelago, 37, 45–49, 54, 65, 69, 165
Galton, Francis, 143, 197, 213, 238, 277–78; CD's 23 December [1869] letter to, 196; *Hereditary Genius*, 196
Gaskell, Elizabeth, 292
gauchos, 16–17, 33
gemmules, 139–40, 245
gender, 185, 187–88, 191–92, 194–96, 212, 233
genealogical trees, 71
genera, 70, 108; protean or polymorphic, 120–21
genetics. *See* variation/variability
geography, 3, 120, 130–31, 150
Geological Society of London, 26

- geological time, 120, 121, 122–23, 129, 131
- geology, xii, 9, 14–15, 24–29, 53, 54, 67, 69, 129; and Chambers, 91; and Croll, 163; Jameson's lectures on, 4–5; and South American inhabitants, 107. *See also* earth
- geometry, 3
- German language, 292
- glacier-lake theory, 234
- Gladstone, William Ewart, 266, 303
- Glen Roy, Scotland, 234
- God/Creator, xi, 37, 55, 66, 72, 112, 114, 133–34, 135, 136, 137, 166, 218, 224; and Erasmus Darwin, 265; debates over, xiii; and design, 133, 164; and Kingsley, 144; limited belief in, 220; and original created forms, 144–45; and sense of sublimity, 222–23; and suffering, 219–20; and theory of evolution, 223. *See also* design; religion
- Goethe, Johann Wolfgang von, 93, 278
- Gould, John, 55
- Grant, Robert, 90
- Grasmere, 293
- grasses, 15, 166
- gravity, 55, 116, 125, 134, 145. *See also* scientific laws
- Gray, Asa, 102, 156, 158, 164, 267; CD's 20 July [1857] letter to, 71; CD's 4 July 1858 letter to, 99; CD's 11 November [1859] letter to, 72; CD's [8 or 9 February 1860] letter to, 127; CD's 3 April [1860] letter to, 127; CD's 22 May [1860] letter to, 133–34; CD's 3 July [1860] letter to, 135, 159; CD's 22 July [1860] letter to, 267; CD's 10 September [1860] letter to, 267; CD's 5 June [1861] letter to, 232; CD's 10–20 June [1862] letter to, 77, 162, 232–33; CD's 23[–24] July [1862] letter to, 167; CD's 28 May [1864] letter to, 255; CD's 28 January 1876 letter to, 257
- Gray, Jane Loring, 257
- Gray, John Edward, 38
- Gray, Thomas, 257
- Great Britain, 210
- Gully, William, 227

- Gunther, Albert, CD's 12
April [1874?] letter to,
37–38
- Haeckel, Ernst, 267, 278–
79
- Haiti/Hayti, 32
- Handel, George Frideric,
Messiah, 251
- Haughton, Samuel, 102
- hawks, 46
- health, xiv, 18, 63, 88, 97,
226–31, 255, 256, 276,
295–96, 297. *See also*
medicine
- Hearne, Samuel, 111
- Henry, William, *Chemical
Catechism*, 4
- Henslow, Rev. John Ste-
vens, 9, 22, 24, 229, 268;
24 August 1831 letter to
CD, 11; CD's [5 Septem-
ber 1831] letter to, 12;
CD's [26 October–] 24
November 1832 letter to,
34; CD's 18 April 1835
letter to, 249; CD's 6
May 1849 letter to, 227
- Herbert, J. M., CD's 2 June
1833 letter to, 32
- Herbert, John Rogers (art-
ist), 279
- Hereditary Genius* (Galton),
196
- heredity, 63, 108, 137, 138–
43, 194
- hermaphrodites, 85, 86, 87,
89, 169
- Herschel, Sir John, 95, 151–
52; *A Preliminary Dis-
course on the Study of
Natural Philosophy*, 10
- Hieracium, 120
- Hippocrates, 141
- history, 3
- hive-bees, 190–91, 199–200
- HMS Beagle*, xi, xiv, xvi,
11–23, 24, 40, 43, 69, 107,
217, 226, 244
- Hodge, Charles, 164
- Holmgren, Frithiof, CD's
18 April 1881 letter to,
247–48
- home-sickness, 18, 21
- Hooker, Joseph Dalton, 71,
100; and CD as fore-
stalled, 100–101; and CD
on *Abutilon darwinii*,
169; and CD on Cham-
bers, 91; and CD on cru-
elty of nature, 70; and
CD on death of son, 76;
and CD on descent, 68;
and CD on *Drosera*, 168;
and CD on end of earth,
252; and CD on experi-
mentation, 235, 236; and
CD on hermaphrodites,

- 85, 86; and CD on Jenkin, 163; and CD on Lamarck, 90; and CD on observation, 85; and CD on orchids, 165, 166–67; and CD on primordial soup, 145–46; and CD on priority, 99; and CD on species, 68–69; and CD on spiritualism, 237–38; and CD on variation, 88; CD's disagreements with, 96; CD's friendship with, 269; and CD's health, 227–28, 229–30; and CD's hothouse, 168; and CD's use of creation as term, 145; character of, 268; and German, 292; legacy for, 259; CD's [11 January 1844] letter to, 90; CD's 11 January 1844 letter to, 65; CD's [7 January 1845] letter to, 91; CD's [16 April 1845] letter to, 165; CD's 11–12 July 1845 letter to, 68; CD's 10 September 1845 letter to, 68–69; CD's [3 September 1846] letter to, 165; CD's [2 October 1846] letter to, 84–85; CD's [6 November 1846] letter to, 85; CD's 10 May 1848 letter to, 85, 86; CD's 13 June [1850] letter to, 88; CD's 5 June [1855] letter to, 165; CD's 13 July [1856] letter to, 70; CD's 15 January [1858] letter to, 227–28; CD's [29 June 1858] letter to, 76, 99; CD's 13 [July 1858] letter to, 100–101; CD's 23 January [1859] letter to, 101; CD's 1 September [1859] letter to, 228; CD's 30 May [1860] letter to, 158–59; CD's 4 December [1860] letter to, 168; CD's 15 January [1861] letter to, 269; CD's 23 [April 1861] letter to, 229; CD's 19 June [1861] letter to, 165; CD's 30 January [1862] letter to, 166–67; CD's 9 February [1862] letter to, 235; CD's 9 [April 1862] letter to, 229–30; CD's 24 December [1862] letter to, 233; CD's 15 February [1863] letter to, 168; CD's 26 [March 1863] letter to, 236; CD's [29 March 1863] letter to,

- Hooker, Joseph Dalton
(*cont.*)
145; CD's [27 January 1864] letter to, 168; CD's 26[–27] March [1864] letter to, 230; letter of [11 June 1864] to CD from, 279; CD's 9 February [1865] letter to, 252; CD's [29 July 1865] letter to, 270; CD's 25 December [1868] letter to, 269; CD's 16 January [1869] letter to, 163; CD's 1 February [1871] letter to, 145–46; CD's 23 July [1871] letter to, 169; CD's 18 January [1874] letter to, 237–38; and Wallace, 102; Wallace's 6 October 1858 letter to, 101
- Hope, T. C., 4
- Horace, 274
- Horner, Leonard, CD's 29 August [1844] letter to, 29
- horses, 25
- humble-bees, 110
- Humboldt, Alexander von, 269; letter to CD, 18 September 1839, 279; *Personal Narrative*, xii, 10
- hunting, 6
- Huxley, Henrietta Anne
Heathorn, 202, 228–29
- Huxley, Julian, 302
- Huxley, Thomas Henry, 71, 153, 154, 157; character of, 269–70; on CD, 279; CD's legacy for, 259; CD's 26 September [1857] letter to, 71; CD's 2 June [1859] letter to, 71–72; CD's 27 November [1859] letter to, 80–81; CD's 28 December [1859] letter to, 152; CD's 3 July [1860] letter to, 159, 270; CD's [5 July 1860] letter to, 158; CD's 22 November [1860] letter to, 160; CD's 22 February [1861] letter to, 228–29; CD's 30 January [1868] letter to, 202; and Darrow, 305; letter to F. Dyster, 9 September 1860, 158; *Nature* obituary of CD by, 300
- hypothesis, 142, 162, 239, 304–5. *See also* science
- Ichneumonida, 134
- iguana, land, 48
- iguana, marine, 47
- imagination, 221, 302
- immortality, 221–22

- indigenous peoples, 39–44, 176, 178, 193–94, 233, 255, 258–59; and belief in God, 220; elimination of weak, 210; and Fuegians as savages, 39–40; and gender, 187–88; mental requirements of, 174; and sexual selection, 181; skulls of, 183
- induction, 151, 162
- industrialization, xiii
- innate qualities, 10
- Innes, J. B., 279–80
- insects, 15, 55, 57, 65, 109, 111, 115, 120, 167, 235, 280
- instincts, 47, 54, 67, 73, 114, 128–29, 132, 148, 181, 191, 198–201, 207, 221, 246, 255
- intellect, 55, 178, 183, 193–97, 211–12, 213–14, 221
- Iquique, Chile, 19
- James, Alice, *Diary*, 303
- Jameson, Robert, 4–5
- Jenkin, Fleeming, 163
- Jenny (orangutan at London zoo), 56–57
- Jenyns, Leonard, 280
- Journal* (C. Darwin), 61, 70, 88
- Journal of Researches* (C. Darwin, 1839), xii; *Beagle* voyage in, 15–18, 19–21; and Galápagos Archipelago, 45–48; geology in, 25–28; and indigenous peoples, 44; and natural history collecting, 33–37; nature in, 249–51; religion in, 218; and slavery, 31; society in, 207–8; and transmutation of species, 54
- Journal of Researches* (C. Darwin, 1845), 49
- Kant, Immanuel, 190
- King's College Chapel, Cambridge, 7–8
- Kingsley, Rev. Charles, 144; A. R. Wallace's 7 May 1869 letter to, 284–85
- Kirby, William, 37
- Krause, Ernst, *Life of Erasmus Darwin*, 263–64
- lacrymal glands, 204
- Lake District, UK, 292–93. *See also* Wordsworth, William
- Lamarck, Jean-Baptiste, 90, 92–93, 95, 154, 161
- Lamb, Charles, 265
- language, 177, 193

- Lavater, Johann Kaspar, 13
- laws. *See* scientific laws
- Lawson, Mr. (resident on Galapagos), 45
- Leibnitz, Gottfried Wilhelm, 273
- “A letter, containing remarks,” 1836 (FitzRoy and Darwin), 40, 43–44
- Lettington, Henry (CD’s gardener), 280
- Lewis, John (carpenter in Downe village), 281
- Licinus beetle, 76
- life, origin of, 144–46; as hidden from man, 67; as mystery of mysteries, 49
- The Life and Letters of Charles Darwin* (F. Darwin, ed.), 258, 286–87, 288–93, 294–96, 297
- Life of Erasmus Darwin* (Krause), 263–64
- Lincoln, Abraham, 303
- Linnaeus, Carl, 238–39
- Linnean Society of London, 99, 100, 102, 103, 229–30, 258, 280, 302
- lion-ant, 37
- Litchfield, Henrietta
Emma Darwin (daughter), 78, 227, 281, 287, 293, 305; CD’s [March] 1870 letter to, 243; CD’s [8 February 1870] letter to, 242; CD’s 20 March 1871 letter to, 179–80; CD’s 4 September 1871 letter to, 63; CD’s 4 September [1871] letter to, 78; CD’s 4 January 1875 letter to, 247; *Emma Darwin*, 61
- Litchfield, Richard, 63
- lizards, 46–47, 48
- Locke, John, 56
- love, 221
- Lubbock, John, 89, 270, 280, 298; CD’s 5 September [1862] letter to, 77, 235
- Lyell, Charles, 53, 70, 96, 100, 256, 264; character of, 270–71; CD’s 30 July 1837 letter to, 53–54; CD’s [14] September [1838] letter to, 54; CD’s [2 September 1849] letter to, 87; CD’s 4 November [1855] letter to, 81; letter to CD of 1–2 May 1856, 71, 80; CD’s 18 [June 1858] letter to, 98; CD’s [25 June 1858] letter to, 98–99; CD’s 20 September [1859] letter to, 72; CD’s [10 December 1859] letter to, 151–

- 52; CD's 10 April [1860] letter to, 92, 155, 156, 272; CD's 4 May [1860] letter to, 174, 209; CD's 17 June [1860] letter to, 124, 134–35; CD's 3 October [1860] letter to, 120, 124; CD's 14 November [1860] letter to, 168; CD's [1 August 1861] letter to, 136; CD's 12–13 March [1863] letter to, 95; letter to CD of 15 March 1863, 161; letter to CD of 16 January 1865, 285; *Principles of Geology*, 24, 29; and Wallace, 97, 98, 99, 101, 102
- Lyell, Mary Horner, 81
- Lytton, Edward Bulwer, 84
- Mackintosh, James, 271–72
- Malay archipelago, 102
- Malthus, Thomas Robert, xii, 57, 66, 107, 162; *An Essay on the Principle of Population*, 58
- mammals, 193
- mandrills, 187. *See also* ape(s)
- mankind: as ape *vs.* angel, 161; as architect, 124; arrogance of, 55; baboon as grandfather of, 56; beauty as created for, 128; as created from animals, 55; as descended from apes, 157, 158, 177, 299, 305; as descended from other species, 93; as designer, 133; dignity of, 174; as discoverer, 237; and divine design, 135; and domesticated animals, 83, 122, 125, 138, 186, 211; early progenitors of, 176–77, 193, 206; intellect of (*see* intellect); mental disposition of, 194–95; as mutable production, 173; and natural selection, 182; nature of, 134, 162; origin of as hidden from, 67; origins of, xi, 115, 124, 131, 173–80, 236; population of, xii, 209–10; power over selection, 111, 122, 125, 138, 149, 186 (*see also* animals, domesticated); and preservation of weakness, 211; races of, 181–84, 195; reproduction of, 182; society of (*see* society, human);

- mankind (*cont.*)
structure of, 131, 176–77;
and struggle for existence, 182, 207–8; and tail, 176
- marriage, 59–64, 191–92, 210, 213, 233
- Marshall, Victor A.E.G.,
CD's 7 [September] 1879
letter to, 272
- Martens, Conrad, 33
- Martineau, Harriet, 281
- Marx, Karl, 162, 303
- mastodon, 25
- materialism, 55
- mathematics, 292
- matter, origin of, 145
- Matthews, Patrick, "Naval
Timber & Arboriculture," 92
- McCormick, Robert, 37
- McDermott, Frederick,
CD's 24 November 1880
letter to, 224
- medicine, 5, 210, 226. *See also* health
- Megatherium, 16
- Mengden, N. A. von, CD's
8 April 1879 letter to, 223
- Messiah* (Handel), 251
- metaphysics, 56, 302
- mice, 110, 134
- migration, of plants and
animals, 130–31
- Mill, John Stuart, 162
- Milton, John, 257; *Paradise
Lost*, 34, 254
- Mimosa, 289
- mistletoe, 108
- missionaries, 43–44
- Mivart, George St. J., 179
- mocking-birds, 46
- modification, 120, 166; descent with, xiii, 65–72, 92, 129, 131; and domestication, 83; and Galapagos birds, 49; for good of another species, 123; and natural selection, 108; and small *vs.* large areas, 119; and Spencer, 94. *See also* variation/variability
- monkeys, 56, 177, 191, 202–3, 258, 272. *See also* apes
- Montagu, Ashley, 305
- morality, 56, 64, 190–92, 209, 217, 219, 221, 225, 264, 298, 302
- Morning Post*, obituary of CD in, 299
- morphology: and adaptation, 56, 67, 108–9, 111, 142; and animals of Galápagos, 48, 49; and ants, 128–29; and design, 135–36; of embryos, 112–13; of man-

- kind, 131, 176–77;
modification of, 83, 131,
166; and natural selec-
tion, 124, 142; of orchids,
166; and pigeons, 83; of
Primula, 169; as similar
in different species, 131
- Muller, J.F.T., CD's [before
10 December 1866] letter
to, 267
- Munchausen, Baron, 16
- Murchison, Sir Roderick,
269
- Murray, John (publisher),
81, 176; CD's 14 June
[1859] letter to, 240;
CD's [3 November 1859]
letter to, 150
- music, 7–8, 223, 257, 291
- Napoleon III, 209
- nations: competition be-
tween, 209; laws, cus-
toms and traditions of,
214
- natural history, xvi, 14, 15–
16, 23, 33–38, 45
- naturalists, 11, 12, 15–16,
18, 21, 112, 153, 175,
188–89, 236
- natural selection, xi, xiii,
77, 122–26; acceptance
of theory of, 96, 175; and
adaptive changes of
structure, 142; and ants,
129; for benefit of other
species, 123; and brain,
174; CD forestalled con-
cerning, 98, 99, 100–101;
and CD's reading of
Malthus, xii, 58; deifica-
tion of, 124; and design,
133, 136; and domesti-
cated animals, 53, 111;
and extinction, 130; and
hive-bees, 199–200; and
human architect anal-
ogy, 124; and human in-
tellect, 194; as implying
choice, 148–49; and indi-
viduals of same species,
138; and instincts, 198,
201; as intelligent
power, 125–26; and
mankind, 182; and Mat-
thews, 92; and modifica-
tion, 108; and new and
improved forms, 130; of
orchids, 166; and preser-
vation of varieties, 148;
and primogeniture, 233;
and progress, 213–14;
Shaw on, 302; and struc-
tures, 124; and struggle
for existence, 98; and
suffering, 220; and sur-
vival of fittest, 147–49;
and United States, 212;

- natural selection (*cont.*)
and variation/variability, 120, 122, 125, 133, 149; and Wallace, xii, 98, 99, 100–101, 102, 147–48, 174, 233
- nature, xiii, 115–16, 130, 249–52; adaptation in, 124–25; Conway on, 276; cruel works of, 70; degrees of perfection in, 123; economy of, 56, 70; history of productions of, 114; illimitable schemes & wonders of, 87; personification of, 125, 126; and Sedgwick, 151; selection in, 53; and variation, 120, 122; war in, 57, 66–67; and wedge metaphor, 56, 67, 109. *See also* design; scenery
- Nature*, obituary of CD in, 300
- “Naval Timber & Arboriculture” (Matthews), 92
- negroes, 30–32, 187
- Nevill, Lady Dorothy, 281
- Newman, Henry, 110
- New South Wales, Australia, 36–37, 208
- Newton, Sir Isaac, 134, 299, 302
- New York Times*, obituary of CD in, 299
- New Zealand, 21, 123
- North, Marianne, 281–82
- Norton, Charles Eliot, 282
- Notebook B* (C. Darwin), 54, 55
- Notebook C* (C. Darwin), 55
- Notebook D* (C. Darwin), 56, 57–58
- Notebook E* (C. Darwin), 181
- Notebook M* (C. Darwin), 56, 256
- Notebook N* (C. Darwin), 57
- observation, xii, xvi, 23, 24, 25, 28, 29, 68, 84, 85, 165, 166, 235, 236, 237, 240, 254–55. *See also* experimentation; science
- Ogle, William: CD’s 6 March [1868] letter to, 141; CD’s 22 February 1882 letter to, 238–39
- On the Origin of Species* (1859) (C. Darwin), xvi, 107–16, 287–88; barnacles in, 89; CD’s plans for, xii; difficulties in, 127, 128–32; Galton on, 277–78; human origins in, 173; Huxley on, 300;

- influence of, 298–99; instincts in, 198–200; natural selection in, 122–23; origin of life in, 144; pigeons in, 82–83; and precursors, 95–96; publication of, xi; responses to, 150–64; species in, 117–20, 121; style of, 240, 241; and theism, 222; tone of, 294; too much attributed to natural selection in, 142; and tree simile, 111–12; variation and heredity in, 138–39; and Wallace, 102
- On the Origin of Species* (1861) (C. Darwin), 92–95, 144–45
- On the Origin of Species* (1869) (C. Darwin): altered view on selection in, 142
- On the Various Contrivances by which British and Foreign Orchids are Fertilised by Insects* (C. Darwin), 124–25, 165–67
- orangutans, 56–57, 204–5.
See also apes
- orchids, 165–67. *See also* adaptation
- organs, 130, 132
- Ornithological Notes* (C. Darwin), 48
- Osorno, volcano of, 27
- ostrich, 33–34
- Otaheite. *See* Tahiti
- Owen, Richard, 26, 155, 157, 272
- Pahia, New Zealand, 21
- Palaeontological Society, 88
- Paley, William, 133; *Evidences of Christianity*, 8–9; *Moral Philosophy*, 8–9; *Natural Theology*, 8–9
- Pampas, 19, 69
- Panageus cruxmajor, 76
- pangeneses, 139, 141, 142, 143, 245
- Paradise Lost* (Milton), 34, 254
- Parana River, 25
- Parkes, Samuel, *Chemical Catechism*, 4
- Parslow, Joseph (CD's butler), 282–83
- Patagonia, 33
- Peacock, George, 11
- peacocks, 127, 186
- Personal Narrative* (Humboldt), xii, 10
- Peru, 19
- Phaedo* (Plato), 56

- philanthropy, 256
Philosophical Club of the Royal Society of London, 227
Philosophical Society of Cambridge, 22
Philosophical Transactions of the Royal Society, 234
physics, 292
physiologists, 153
physiology, 248
pigeons, 80–83, 140
pineapples, 20
planets, 130, 134, 136
plants, 65, 115, 280; collection of, 165; competition among, 118; and diverse physical conditions, 118; domesticated, 53, 122; genera of, 120; migration of, 130–31; naming of, 165; parasitical, 15; peculiar to Galápagos Archipelago, 165; progenitors of, 144; and struggle for existence, 58; varieties of, 118–19. *See also* botany; population; species
Plato, 95; *Phaedo*, 56
platypus (*Ornithorhynchus paradoxus*), 36
poetry, 257, 302
politics, 232–33
pollen, 139, 166, 169
Polynesia, 207
poor-laws, 210
population, size of, xii, 57–58, 66–67, 107, 109, 121, 209–10
Port Desire, Patagonia, 33
Portillo pass, 251
Portugal, 84
Portuguese, 32
poverty, 210, 213
Powell, Baden: CD's 18 January [1860] letter to, 91–92; "Essays on the spirit of inductive philosophy, unity of worlds, and the philosophy of creation," 94–95
A Preliminary Discourse on the Study of Natural Philosophy (Herschel), 10
primogeniture, 212, 233
primordial form, 144
primordial soup, 145–46
Primula, 169
Principles of Geology (Lyell), 24, 29
progress, 213–14, 252, 271
proteins, 145
Protococcus nivalis (red snow), 35–36
psychology, 94, 115
Punch, 161

- Quadrumana, 176
Quillota, valley of, 26
- rabbits, 143
races, 181–84, 205–6, 211
Raverat, Gwen, 296–97
reading, 254, 257, 289,
291–92
reason, 200, 221, 240,
254–55
red clover (*Trifolium
pratense*), 110
religion, xiii, 61, 154, 217–
25, 271, 280, 298, 303. *See*
also God/Creator
*The religious views of
Charles Darwin* (Avel-
ing), 224–25
reproduction, 138, 139–40,
141, 182. *See also* sexual
selection
reversion, principle of, 140
Richmond, George, 2
Rio Negro, Northern Pata-
gonia, 25, 33, 34
rock-pigeon (*Columba
livia*), 82
Romanes, George J., 301;
CD's 7 March 1881 letter
to, 197
Rosa (plant), 120
Royer, Clémence-Auguste,
162
Ruskin, John, 272
Rydal Water, Lake District,
293
- Saint Hilaire, Isidore Geof-
froy, 93
Santa Maria, island of, 28
Santiago, Cape Verde, 14
Sarandis River, 25–26
Saturday Review, 24 De-
cember 1859, 154
scenery, 15–16, 20, 26–27,
217–18, 222–23, 249–53,
257, 292–93. *See also*
nature
science, 62, 71, 158, 232,
234–39, 254, 259, 265;
and arguments from re-
sults, 68; and brother's
chemistry experiments,
4; and causes, 237; and
caution, 236; CD's influ-
ence on, 299, 300; CD's
inspiration concerning,
10; CD's love for, 254,
256; and Chambers, 94;
and Darrow, 305; and
design, 136; facts, gen-
eral laws, and conclu-
sions in, 9–10; and false
views, 237; and freedom
of thought, 224; Gray
on, 156; Julian Huxley
on, 302; T. H. Huxley on,

- science (*cont.*)
153; incomplete and incorrect hypotheses in, 142; and Lyell, 271; non-biological, 292; Sedgwick's encouragement in, 22. *See also* hypothesis; observation
- scientific laws, 10, 54, 93, 114, 115, 116, 126, 133, 145, 303; of battle, 185; and CD's mind, 253, 258; designed, 134, 135; general, 124; and human origins, 173; secondary, 166; and variability, 128. *See also* gravity
- Scott, Sir Walter, 291–92
- séances, 238
- sea-sickness, 14
- Sebright, Sir John, 83
- Sedgwick, Rev. Adam, 9, 22; letter to Darwin, 24 November 1859, 151
- seeds, 108–9, 139, 141
- sentient beings, 135–36, 219
- sexes, 185–88. *See also* gender
- sexual selection, 181, 183–84, 185–89. *See also* reproduction
- Shakespeare, William, 257
- Shaw, George Bernard, *Back to Methuselah*, 302
- Shelley, Percy Bysshe, 257
- shells, 65
- shooting, 6, 7
- Shrewsbury, gravel beds in, 9
- Shrewsbury School, 3, 4, 6
- Silas Marner* (Eliot), 291
- Silk, George, 160
- slavery, 30–32, 61, 232, 233, 264
- snuff, 281, 290–91
- society, human, 207–14, 233
- soul, 56, 222
- South America, xi, 11, 26, 28–29, 69, 107, 234
- species, 53–58, 68, 71, 117–21, 235; adaptation by (*see* adaptation); classification of, 65, 70, 89, 112; and community of descent, 117; competition between, 111, 119; as created, 71, 92, 114, 285; definition of, 67, 117, 118; descendants of, 108; descent of, 93, 95; difficulty of distinguishing, 94, 117–18; diversification of, 119–20; domesticated, 53, 122, 125, 138,

- 139, 140; dominant, 119; exactness of, 55; extinct, 26, 84, 108, 110, 111, 114, 129–30; increase of, 66–67, 120; and individual creations, 67; individuals of same, 138; modification of (*see* modification); as mutable productions, 173; new, 58, 95, 97, 119, 129, 136, 149; and new conditions of life, 120; as not immutable, 65; origin of, 57, 93, 102, 107, 114, 155, 285; and Powell, 95; relation of oldest forms to existing, 150; and selection in nature, 53; and Spencer, 94; stability of, 48; and sterility, 67; and struggle for existence (*see* struggle, for existence); and sub-species, 117; survival of (*see* survival, of fittest); theory of, 85, 86; transmutation of, 54, 69; and tree simile, 111–12; variation among (*see* variation/variability); warring of, 57–58; weaker structures in, 56. *See also* animals; plants; population
- S. Pedro, Chonos Archipelago, 35
- Spencer, Herbert, 147–48, 272–73; “Essays,” 94
- spiritualists, 237–38
- Sprengel, C. K., *Das entdeckte Geheimnis der Natur*, 57
- Stazione Zoologica di Napoli, 238
- St. Jago [Santiago], Cape Verde islands, 24
- struggle, for existence, xii, 107–8; and American Civil War, 233; and Malthus, 57–58; and mankind, 182; and natural selection, 98, 123, 148, 149; and population size, 66–67, 109, 110; and races of men, 181
- sublimity, sense of, 222–23
- subsistence, 209–10
- suffering, 219–20, 233. *See also* vivisection
- Sullivan, Bartholomew James, 225
- Sundew, 289
- survival, of fittest, 142, 147–49
- Sutton, Seth, 203
- Tahiti, 20, 43, 291
- taxidermy, 5

- theism, 222, 224, 265, 271
theology, 303. *See also*
 religion
Thompson, Sir William,
 163
Thorley, Catherine A.,
 165
Tierra del Fuego, 39–42, 44,
 178, 217, 250
The Times, 152, 232; obitu-
 ary of CD in, 298–99
Timiriazev, Kliment, 283
toads, 34
Tollet, Ellen, 225
Tollet, Laura, 225
tortoises, 37–38, 45–46
Toxodon, 26
Tree of life, 112
Turin Society, 238
Twain, Mark, 284
Tyndall, John, 284
tyrant-flycatchers, 46

Unitarianism, 265
United States, 158, 209–10,
 212; Civil War in, 232,
 233
universe, 135

vaccination, 210–11
Valdivia, Chile, 27–28
The Variation of Animals and
 Plants under Domestica-
 tion (C. Darwin), 83,
 125–26, 136–37, 139–41,
 142, 148–49
variation/variability, 66,
 138–43, 150; and adapta-
 tion, 67; and chance,
 139; and conditions of
 life, 128; and design *vs.*
 natural selection, 133;
 and human selection,
 122; as independent of
 conditions of life, 121;
 and instincts, 201; and
 laws, 128; and natural
 selection, 120, 122, 125,
 133, 148, 149; and or-
 ganic and inorganic con-
 ditions of life, 122; and
 pigeons, 82–83; slight
 degrees of, 88; and
 struggle for existence,
 58, 67, 107–8; and suffer-
 ing, 220; and use and
 disuse, 128; useless, 142.
 See also modification
variety (taxonomic), 117,
 118, 119
Vestiges of the Natural His-
 tory of Creation (Cham-
 bers), 91, 93–94, 154
Victoria, Princess Royal of
 Russia, 285
vivisection, 246, 247–48.
 See also suffering
Volute (sea snail), 9

- Wallace, Alfred Russel, 95, 116, 304; admiration of for CD, 156, 160; CD as forestalled by, 98, 99, 100–101; CD on modesty of, 157, 273; and CD on sexual selection, 181, 182; CD's 22 December 1857 letter to, 97, 173, 235; CD's 18 May 1860 letter to, 157; CD's 28 [May 1864] letter to, 181, 233; CD's 15 June [1864] letter to, 182; CD's 5 July [1866] letter to, 147–48; CD's 27 March [1869] letter to, 142, 175; CD's 14 April 1869 letter to, 175; CD's 20 April [1870] letter to, 273; CD's agreement with, 97; on completeness of CD's work, 156; on Darwin's abilities, 284–85; letter to CD, 2 July 1866, 125, 147; letter to J. D. Hooker, 6 October 1858, 101; letter to Charles Kingsley, 7 May 1869, 284–85; letter to George Silk, 1 September 1860, 160; and natural selection, xii, 98, 99, 100–101, 102, 147–48, 174, 233; on similarities to CD, 301–2; *On the Tendency of Species to Form Varieties; and on the Perpetuation of Varieties and Species by Natural Means of Selection*, 100; simultaneous announcement of theories with CD's, xii, 99, 100, 101, 102
- Waterton, Charles, 5
- Watson, James D., 305–6
- wealth, 211–12
- Wedgwood, Caroline
Sarah Darwin (aunt), 225
- Wedgwood, Hensleigh, 238
- Wedgwood, Josiah, II, 11–12, 22, 273–74
- Wedgwood, Julia, 287;
CD's 1 July [1861] letter to, 135–36
- Wedgwood family, 296–97
- Whewell, William, 67, 142, 160
- Whitley, C. T., CD's 8 May 1838 letter to, 59
- Wickham, John Clements, 13, 30
- Wilberforce, Rev. Samuel, 157, 158
- will, 137, 204

- Wilson, William, 43
Wollaston, Thomas V., 71
wolves, 65
woodpeckers, 108, 165,
252
Wordsworth, William, 257;
The Excursion, 254. *See*
also Lake District, UK
worms, 115
writing, xv, xvi, 14–15,
240–43, 289, 290, 293–94
- Yaghan people, 41
York Minster (El'leparu),
42
- Zoological Gardens, Lon-
don, 203, 204
Zoological Society of Lon-
don, 35
zoology, 4, 45–49, 91
Zoonomia (E. Darwin), 90,
93