

## CONTENTS

*Introduction* ix

<b>PART I. COLLECTOR</b>	1
1 Bobby	3
2 From Medicine to Seaweed	23
3 “An Idle Sporting Man”	45
4 The Professors	61
<b>PART II. TRAVELER</b>	79
5 New Horizons	81
6 Naturalist on the <i>Beagle</i>	103
7 Almost Another Species of Man	120
8 Mountains	145
9 Islands	161
10 Homeward Bound	181

<b>PART III. NATURALIST</b>	<b>193</b>
11 Paradise Lost	195
12 “A Theory by Which to Work”	216
13 A Man of Property	233
14 Forestalled but Forewarned	252
15 Dying by Inches	271
16 Ship on the Downs	288
<b>PART IV. AUTHOR</b>	<b>309</b>
17 Shipwrecked	311
18 “My Abominable Volume”	333
19 Publish and Be Damned	351
20 Four Musketeers	377
21 “Darwinism”	398
22 The Burden of Heredity	421
<b>PART V. CELEBRITY</b>	<b>445</b>
23 Son of a Monkey	447
24 Darwin in the Drawing Room	474
25 Eyes Among the Leaves	496
26 Home Is the Sailor	515

CONTENTS

vii

<i>Acknowledgments</i>	541
<i>Notes</i>	545
<i>Bibliography</i>	565
<i>Illustration Credits</i>	589
<i>Index</i>	591

# 1

## Bobby

CHARLES DARWIN was born into Jane Austen's England. Indeed, his family could have stepped out of the pages of *Emma*, the four girls sharply intelligent about the foibles of others, their father as perceptive as Mr. Knightley. The boys had equally distinctive qualities. Charles and his older brother Erasmus were obliging and sympathetic young men full of the easy charm and modest tastes that made Austen's characters stand out in the drawing rooms of local notables. These natural attributes were enhanced by a substantial family fortune. Behind the scenes presided Mrs. Darwin, a well-educated woman, at one time a friend of the novelist Maria Edgeworth, who now led a retired life, "never quite well & never very ill," according to her sister Sarah.<sup>1</sup>

Like Austen's fictional families, the Darwins lived in a market town in the English countryside, in their case in Shrewsbury, the county capital of Shropshire, standing on the River Severn between the manufacturing Midlands and the wild, craggy hills of Wales. Farther downstream lay William Hazledine's ironworks, the driving force of the early industrial revolution. Northeast sat the smoking chimneys of the Potteries. The town of Shrewsbury was untouched by any sign of industrial change: the big black-and-white houses of Tudor wool merchants lined the narrow streets leading up to an old marketplace and then to a castle and private school for boys while the river and its meadows circled the town below. Demographically, it had hardly changed since Daniel Defoe visited more than a hundred years earlier: he had found a "large, pleasant, populous, and rich town; full of gentry and yet full of trade too."<sup>2</sup>

This quiet provincial town enclosed the Darwin family and others like them in a self-contained world, defined in social terms by the landed gentry of neighboring estates and wealthy manufacturers.

This pleasant costume-drama version of history nevertheless obscures the reality of early nineteenth-century life in Britain. Much remained unseen by genteel eyes. Rural poverty and dispossession devastated the countryside as new modes of production replaced traditional labor patterns. The nation's workforce was crippled by disease, famine, emigration, and intense political pushback, while the fortunes of the upper classes rested not only on the ownership of land but also on the products of colonial investment and trade: plantation crops such as sugar, cotton, tea, and lumber produced for two centuries or more by the enslavement and transportation of African peoples. By the time of Jane Austen's death in 1817, the nation's inhabitants were already moving into the "grim future of capitalism and the industrial age," as documented by Friedrich Engels.

The Darwin family's financial capital insulated them from these circumstances. Their status in the neighborhood was high. Activities centered on the wide-ranging pursuits of Dr. Darwin and his brother-in-law, the factory owner Josiah Wedgwood (the second of that name), two successful men whose friendship began when their respective fathers shared philosophical and commercial interests, then consolidated by Dr. Darwin's marriage to Josiah's sister Susanna. That earlier generation had been famous in their day: Erasmus Darwin was prominent in the later years of the eighteenth century as a philosophical and medical thinker, noted for his poems about the progress of science and society; and the first Josiah Wedgwood was renowned for establishing the china factory that carried his name. Together, they energized the industrial revolution.<sup>3</sup> While Charles Darwin later claimed that he gained nothing from his two eminent grandfathers, the record shows quite the reverse, although not perhaps in the way Darwin meant it. If nothing else, these two figures provided him with social status and financial security, along with a vigorous mind just like theirs.

Thirty years later, at home in the Darwin-Wedgwood family circle, the ambience was undeniably elitist: leisured, cultured, and learned.

There was a regular round of letters to write, newspapers to read, country walks, sewing, and horse riding, punctuated by visits to cousins and music festivals in nearby towns. In conversation, the Darwins and Wedgwoods felt themselves to be socially progressive, males and females alike, with views that were liberal in political terms, full of civic commitment and rational engagement. Several members of the extended family adopted skeptical views about religion, while others leaned toward Unitarianism, the least demanding wing of the Protestant faith, a social identity that linked them with other families of their kind, a shared heritage rather than a fervent faith. Politically, they supported the Whig party, the faction in Parliament that promoted the interests of merchants in developing free trade and reform to the voting system. High on the Whig agenda was the abolition of slavery.<sup>4</sup> Everyone in the family passionately supported emancipation.<sup>5</sup> Science—or natural philosophy, as it was then called—was very much a part of this culture. Fireside discussions could easily range from current affairs to anatomical discoveries or new pottery designs. The Darwin family was up-to-date with contemporary medical, technological, and scientific thought. They read the periodicals of the day and were familiar with the rapidly diversifying manufacturing economy of Great Britain. When talk on these subjects was exhausted, one or another of the sisters would read novels or enlightening literature aloud.

This socially secure and forward-looking family lived in a period of extraordinary change in Britain—in politics, art and literature, science, agriculture, industry, and trade. From the time of American independence to the trial of Queen Caroline in 1820, there were hardly any other years in British history so full of international engagement, political crusades, and commercial expansion: revolution and terror in Paris at the turn of the century, the long-drawn-out wars with Napoleonic France, grain riots, crippling taxes, “gagging bills” in Parliament, deep-seated antagonisms between rich and poor, and always the shameful exploitation of enslaved peoples.<sup>6</sup> At the same time, innovative technologies were transforming the national economy: factories and mills sprouted deep in the backbones of England and Scotland; iron, coal, textile, and pottery works marched through the Midlands; canals, roads,

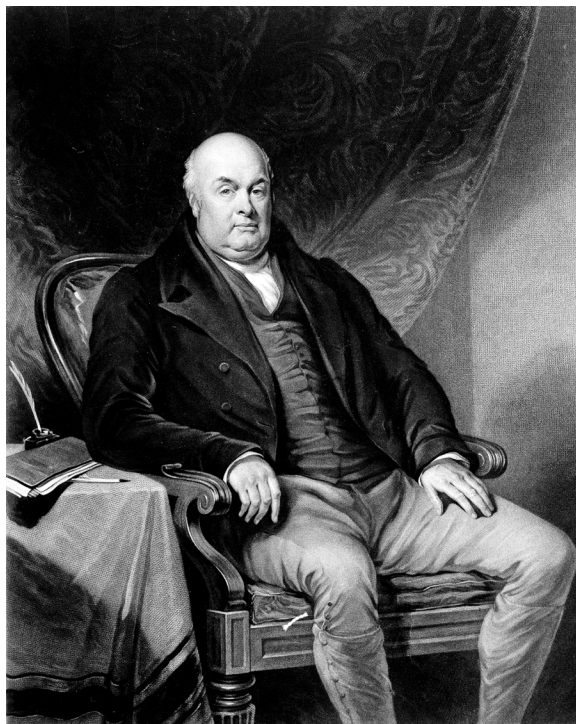
and bridges sliced the land; close-packed houses in terraced streets began altering the face of towns such as Birmingham, Derby, and Newcastle. These early capitalist concerns stood witness to a machine-based future. Britain was becoming the first industrial nation, a Prometheus unbound.<sup>7</sup>

Few families were so well poised to take advantage of the transforming world as the Darwins of Shrewsbury.



Charles Robert Darwin was born in Shrewsbury on February 12, 1809, the fifth child of Susanna and Robert Waring Darwin of The Mount, a large Georgian house overlooking the bend in the River Severn.<sup>8</sup> In one of those odd moments of history, Abraham Lincoln was born on the same day, a curious coincidence. Alfred Lord Tennyson and William Gladstone were born a few months later. The boy's father was a prosperous physician, one of three practicing in Shrewsbury, his mother the oldest daughter of Josiah Wedgwood. As a youngster, he was called "Bobby."

The Wedgwood connection and Dr. Darwin's medical success gave an indisputably affluent gloss to the couple's position in Shrewsbury society. Susanna Wedgwood brought financial capital to the marriage, invested on her behalf as an eventual inheritance for any children. The new Mrs. Darwin's assets included a stake in the Etruria Works and an inheritance of £25,000 on the death of her father in 1795.<sup>9</sup> Some of this capital went into agricultural land: Dr. Darwin purchased two farms in Lincolnshire and rented them out to tenants at a profit. The rest went into shares in the developing transport systems of the era, principally canals.<sup>10</sup> Other income came from Dr. Darwin's private financial arrangements with local gentlemen. Robert Darwin acted as a personal banker at a time when financial institutions were unreliable and not yet governed by laws to protect investors.<sup>11</sup> He favored loans, or what he thought of as mortgages, a straightforward device for people to borrow cash sums on the security of land or housing. Returns took the form of quarterly interest payments or a percentage of the profit. Within a few decades, this kind



1. Dr. Robert Darwin, the largest man Charles ever saw. His financial activities made the family rich. Mezzotint after J. Pardon, 1839.

of paper wealth—as distinct from older forms of wealth based on land—became a crucial element in supporting new industrial concerns.<sup>12</sup> Dr. Darwin grew rich. Charles Darwin—later to become a shrewd economist of the natural world—was to grow up in a household tastefully adorned with the results of accumulation and profit.<sup>13</sup>

The risks, however, were as great as the profits were enticing. Dr. Darwin had been careful. Arriving in Shrewsbury in 1787 with medical degrees from Edinburgh and Leiden and two small inheritances from his mother and an aunt, he first put his capital into housing, buying the freehold of several row houses in the town. The story that there was only £20 in his pocket is probably apocryphal though apt enough in its implied recognition of his ability to prosper. Then, using the

income from rents, he began to invest in some of the bigger commercial ventures of the age, particularly the construction of roads and canals. He was, for example, a major stockholder in the Trent and Mersey Canal that ran past the Wedgwood factory, set up by his father-in-law to distribute chinaware securely along a network of inland waterways, and also an investor in the Holyhead Road, built by the engineer Thomas Telford to serve as a central artery across Britain, both of which opened up the manufacturing areas of Britain for trade. Telford, who lived in Shrewsbury for a while, undoubtedly knew his backer by repute, if not personally, and may have provided him with other entrepreneurial investment opportunities. Dr. Darwin seems to have been keen on infrastructure. Later on, he supported the Ellesmere Canal that linked the river systems of northwest England and the cast-iron bridges spanning the Conwy and the Menai Straits marking the culmination of Telford's career.<sup>14</sup> More than once, he lent Susanna's brother, the second Josiah Wedgwood, substantial sums to steady the accounts of the family company.

Only a third of Dr. Darwin's annual income therefore came from medical fees: about £3,000 in a good year.<sup>15</sup> By the time the doctor died in 1848, he was worth a great deal, even excluding his wife's inheritance and marriage bond. Dr. Darwin's probate amounted to £223,759.<sup>16</sup> For comparison, the estate of his brother-in-law, the second Josiah Wedgwood, came to £150,000. Roughly comparable again, the estate of Robert Owen, relating to the factory town of New Lanark, amounted to £128,000. It was not said lightly that Robert Darwin owned three-quarters of Shrewsbury and knew the medical secrets of the rest.

In 1798 he decided to have his own house built in a style appropriate to this social prominence. He purchased seven acres of land overlooking the town and laid out gardens, terraces, and walks.<sup>17</sup> The Mount was finished in 1800, and there Susanna and Robert Waring Darwin lived for the rest of their lives.



Into this affluent household came Charles Darwin, a gray-eyed child, quiet and friendly. His most prominent feature, he later said, was a nose

“as big as your fist,” as he plaintively wrote to a school friend. Like his father (and apparently grandfather Darwin as well), he tended to stammer, having special difficulties with the letter *w*. There was a prize of sixpence waiting for the day he could manage to say “white wine”: an odd requirement in a teetotal household.<sup>18</sup>

Both the boy and his childhood appear to have been unremarkable, a point often commented on by friends and relations after he became famous. William Allport Leighton, an early school friend, thought the nine-year-old Darwin entirely ordinary: no obvious candidate for subsequent achievement. “In figure he was bulky and heavy-looking and did not then manifest any particular powers of mind.”<sup>19</sup> His occupations at home consisted of such things as lying underneath the dining room table reading *Robinson Crusoe*.<sup>20</sup> Even Darwin agreed that “I must have been a very simple little fellow.”

He was surrounded by family affection. Three sisters and a brother preceded him. Marianne, the eldest, was nearly eleven years his senior, an inhabitant of another universe for a small child, but she enjoyed a warm relationship with him despite the age gap. She married a local doctor, Henry Parker, in 1824. Caroline and Susan were nine and six years older than Charles, respectively. Then came his brother Erasmus, born in 1804. One year after Charles’s birth, in 1810, another girl was born, named Emily Catherine, usually called Catherine. The two youngest children were often paired together, in the way of large families. Aged six and seven, they posed for a charming pastel portrait made in 1816 by the fashionable artist Ellen Sharples, whose father was noted for portraits of some of the founders of the United States. Sharples drew matching portraits of other members of the family. The “sisterhood,” as Charles dubbed them, was central to his early life and filled a large part of his heart.

The rest of his heart was dedicated to Erasmus Alvey Darwin, almost five years older than he, of whom a school friend wrote that “a more thoroughly honorable and excellent a man never lived.”<sup>21</sup> The boys were close. As adults they were alike in their powerful intellects, retentive memories, and delicate constitutions. They came to enjoy the same circle of London acquaintances, the literary side mingling freely with the scientific and the same extended family of intermarrying cousins.



2. Charles and his younger sister Catherine, a pastel drawing by Ellen Sharples, 1816.

They shared the same wide-ranging—often acerbic—views on science, politics, literature, and theology.

Where Charles Darwin differed from his brother Erasmus was in determination and physical energy. Erasmus eventually idled away his bachelor existence on a private income in London, his lazy charm sought out by Jane Carlyle and Fanny Mackintosh Wedgwood as well as the author Harriet Martineau, quite the opposite of his brother, who came to do nothing but work. Some of Charles Darwin's dogged persistence can perhaps be attributed to the efforts of a younger brother to match what he believed were the natural gifts of the older. Curiously few studies of Darwin's life have done justice to his feelings for Erasmus.

At the age of eight, Darwin was sent to be tutored by the Reverend George Case, a Unitarian minister in Shrewsbury whose chapel meetings were attended by his mother and the older girls. Dr. Darwin did not attend any church except for formal events such as marriages and funerals. Unitarianism was a relatively recent wing of the Protestant faith, established by mathematical philosophers in the eighteenth century who could not easily accept the conventional Christian trinity of Father, Son, and Holy Ghost, and for that reason was adopted as a compromise by many rationalists.<sup>22</sup> Unitarians posited that the deity was a single entity, a point of view often criticized as a first step toward nonbelief. Darwin family anecdote had it that Unitarianism was a featherbed to catch a falling Christian. Across the Darwin-Wedgwood circle, however, there was a broader spectrum of religious opinion than this might suggest, ranging from evangelicalism in outer branches of the clan to the predominantly secular frame of mind shown by Dr. Darwin and his sons. Along the way, the extended family included an Anglican clergyman or two. Such a range of view was not solely the prerogative of the men among the family: one of the Wedgwood aunts was notorious among the family for her religious skepticism. The Darwin family did not persist in their preference for Unitarianism and were nominally members of the established Anglican church.

Darwin's childhood interests were based on the outdoor activities of the country gentry. He learned to ride ponies and to shoot and fish. He collected colored pebbles and plants, threw stones at sparrows, and helped himself to apples from the orchard when no one was looking. His aim was good enough, he remembered with horrified pride, to kill a hare in the flower garden with a marble. That same flower garden was obediently watered by him on other occasions at his sisters' command.

His own recollection of these activities misses some of the strange intensity of his amusements. He was an avid collector from a very early age, giving undivided attention to accumulating any kind of object, ranging from birds' eggs to the wax seals that came on letters: "The passion for collecting which leads a man to be a systematic naturalist, a virtuoso or a miser, was very strong in me." Different-patterned biscuits would have done, he joked afterward: "I had thus young formed a strong

taste for collecting, chiefly seals, franks &c but also pebbles & minerals,—one which was given me by some boy, decided this taste.—I believe shortly after this or before I had smattered in botany, & certainly when at Mr Case’s school I was very fond of gardening. . . . It was soon after I began collecting stones, ie when about 9 or 10 I distinctly recollect the desire I had of being able to know something about every pebble in front of the Hall door—it was my earliest—only geological aspiration at that time.”<sup>23</sup> In a laborious nine-year-old hand, he wrote his own labels for his collection: “A piece of tile found in Wenlock Abi. C. Darwin, January 23, 1819.”<sup>24</sup>



Dr. Darwin was wealthy enough to indulge an interest in gardening and laid out an extensive garden. He also built a hothouse for scented plants, succulents, and bulbs. Nine orange trees in pots, azaleas, camellias, ferns, and specimen primulas were all listed when the contents of the family home were dispersed by auction in 1866. The doctor, moreover, had an intelligent, scientific concern in the turning of the seasons directly modeled on Gilbert White’s account of Selborne (1789) and kept a garden book in which the first flowering or leafing of each plant was recorded in tandem with the daily temperature and weather. Young Charles was occasionally involved with observing and recording these details. “Papa asked me to do this,” he recorded in a childish, misspelled script. “Ther was in year 1819, 160 flower on the Poenies [Peonies]. In the year 1820, 384 flower. In the year 1821, 363 flower.”<sup>25</sup>

Dr. Darwin enjoyed the lad’s company in other ways as well and sometimes took him out with him in his carriage—a tight fit, for it was a single-seater and the doctor was of ample proportions—to while away the time spent traveling between medical calls. With his prodigious memory prompting anecdotes on every road leading out of Shrewsbury, a gift for expansive talk and speculation, and acute powers of observation, Dr. Darwin was an impressive figure in the boy’s eyes. Any conversational gaps were filled by Charles “telling him of my lessons, & seeing game & other wild birds, which was a great delight to me.”<sup>26</sup>

Nothing in this period suggests that Dr. Darwin was an oppressive father, as has occasionally been suggested.<sup>27</sup> He was stern, certainly, and intermittently frightening to younger visitors to The Mount with his immense bulk and insistence on dominating the conversation. “There was a want of liberty at Shrewsbury whenever the Doctor was in the room,” said Emma Wedgwood, one of his many nieces. “He was genial and sympathetic, only nobody must go on about their own talk.” Another niece was more charitable. “My uncle, Dr Robert Darwin, was a tall, very large man, weighing more than 20 stone [280 pounds], but wonderfully active for his size and very fond of his garden. He was extremely cheerful and agreeable, full of amusing anecdotes and considered a very clever doctor.”<sup>28</sup> Her view was echoed by William Owen, one of Dr. Darwin’s landowning contemporaries in Shropshire. “There is something about him,” he said, “so liberal, so high minded & yet so unassuming that it is quite impossible to know him well without respecting & loving him.”<sup>29</sup>

Accordingly, Charles Darwin was sincere, if sentimental, when he described his father as the “kindest man I ever knew.” Dr. Darwin’s chief characteristics, he remembered, were his powers of observation and his sympathy, “neither of which have I ever seen exceeded or even equalled.” Much later on, whenever he began a sentence with the words “My father thought” or “My father said,” his wife and children knew that whatever would follow was incontrovertible.<sup>30</sup> It was admiration, not antagonism, that linked father and son together throughout life.



This steady boyhood existence did not go completely unmarked. Tragedy swept in when his mother Susanna died in 1817. Charles was eight years old.

Chronic ill health was endemic to the Wedgwood family, and Susanna, aged fifty-two, suffered from what was then called rheumatic fever and headaches for years after her marriage, some of them abjectly chronicled in letters to her sisters. She traveled to Bath and other spa towns to take the waters and for a period tried sea bathing as a remedy.

Like her own mother, Sarah Allen Wedgwood, who had married the first Josiah Wedgwood in 1764, and her brother Tom, who died in 1805 of opium addition exacerbated by intestinal maladies, she was always ill. “Everyone seems young but me,” she complained in 1815.<sup>31</sup>

This time it was different. In July she was taken ill with violent stomach pains. Two days into the attack, it seemed clear to Dr. Darwin that she could not survive. Susanna’s sister Kitty Wedgwood was summoned to Shrewsbury at short notice.

“It is impossible to have a worse account than I have to give,” Kitty wrote to another sister in Staffordshire:

The Dr has not the slightest hope & her suffering is terrible. The pain indeed is gone that was her first illness, but she has such severe vomitings, and sickness that he says he does not think her suffering much lessened. . . . This evening she is worse, & he is very wretched. Still though so exceedingly feeble, she has such a tenaciousness of life, that he fears she may suffer for some time. . . . Her senses are as perfect as ever. From feebleness she can hardly speak. She has not seen any of the children but Marianne & Caroline since Friday.<sup>32</sup>

She died of what may have been peritonitis about twenty-four hours later. There was at that time no requirement for a certificate stating the immediate medical cause.

As a mature man, Charles Darwin remembered very little about her death, writing candidly that “I recollect my mother’s gown & scarcely anything of her appearance. Except one or two walks with her I have no distinct remembrance of any conversations, & those only of a very trivial nature.—I remember her saying ‘if she did ask me to do something, which I said she had, it was solely for my good.’”<sup>33</sup>

It must have been heartbreakingly confusing for an eight-year-old and surely pushed into the shadows of an unformed mind. Many years later, he was puzzled to hear that his younger sister Catherine, aged only seven, recollected almost all the circumstances. “When my mother died, I was 8 & ½ old—and she [Catherine] one year less, yet she remembers all particular & events of each day, whilst I scarcely recollect anything, except being sent for—memory of going into her room, my Father meeting us

crying afterwards.—”<sup>34</sup> He never wrote down what Catherine told him. Darwin must have suppressed all but the most rudimentary memory of his mother’s death, the first compelling occasion in a life spent struggling with the desire to push unpleasant things to one side.

Dr. Darwin never married again. Yet Charles Darwin, only eight years old, did not remain completely motherless. Her place was filled by the two older sisters who lived at home: Caroline and Susan. Caroline loved him dearly and took him under her wing. She ensured Darwin’s continuing education and that he knew his Bible. She took him to church at St. Chad’s, the Anglican parish church on the outskirts of Shrewsbury where the siblings had been baptized and where Susanna Darwin was buried. She fondly called him “my dear Bobby” or “dearest Charley” in letters and gave him news about the family dog. And it was Caroline who featured in one of Darwin’s earliest memories, in which he described sitting on her lap while she peeled an orange out of the hothouse for him.<sup>35</sup>

The legacy of this death may have manifested in other ways. Eventually, it undoubtedly influenced the kind of woman that Darwin sought out as a wife, swayed by fondness for his sisters rather than memories of an absent mother. Rather more disturbingly, Darwin also came to worry that his continual ill health as an adult and the weaknesses of his children were inherited from his mother and her side of the family. The possibility of hereditary disease became in his mind a terrifying threat that could bring a fatal attack to any of his loved ones. Constant preoccupation with the state of his “accursed stomach” through the long decades of middle life carried with it the unspoken anxiety that he or one of his children might die from the same inexplicable complaint as his own mother. Perhaps the way his mother died delivered the blow from which Darwin never quite recovered.



At the age of nine, Darwin was sent away from home to Shrewsbury School in the center of town. The plan had been formulated before Susanna Darwin died, and Dr. Darwin saw no reason to change it. Erasmus had made the move three years earlier at much the same age. It was

customary for boys in the prosperous classes to attend private schools of this kind that required them to reside on the premises and be educated in classical literature.

Still, the impact of a formal divorce from home can hardly be overestimated. Going away to boarding school was bad enough for any small boy, even worse for one who had just lost his mother, and may well have been a critical personal turning point. School separated Darwin from his home environment at the very time he needed it most. Furthermore, the school in itself was unpleasant. For these reasons Darwin never displayed any of the affectionate regard that many grown Englishmen retain for their school days.

The headmaster was Samuel Butler, who was fictionally portrayed by his grandson as Dr. Skinner of Roughborough School in *The Way of All Flesh*. In real life, the premises were woefully inadequate: Younger boys slept in a long attic gallery above the library, with chamber pots under their iron-framed beds. The sanitary arrangements, as Darwin later described them, left a lot to be desired: “There was one particular long dormitory in which 20 or 30 boys slept in which there was only a single window at the end.” Sixty years later the thought of the “atrocious smell of that room in the morning” could still turn his stomach.<sup>36</sup> School food was so unpleasant that most parents supplied their children with baskets of meat, fruit, and pies, which encouraged a hidden market in goods and favors. Liquor was much in evidence. Older pupils sometimes threatened each other with loaded pistols and fought with local boys down by the river.<sup>37</sup>

Nothing could have been worse for the development of my mind than Dr. Butler’s school, 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. During my whole life I have been singularly incapable of mastering any language. Especial attention was paid to verse-making, and this I could never do well. I had many friends, and got together a grand collection of old verses, which by patching together, sometimes aided by other boys, I could work into any subject. Much attention was paid to learning by heart the lessons

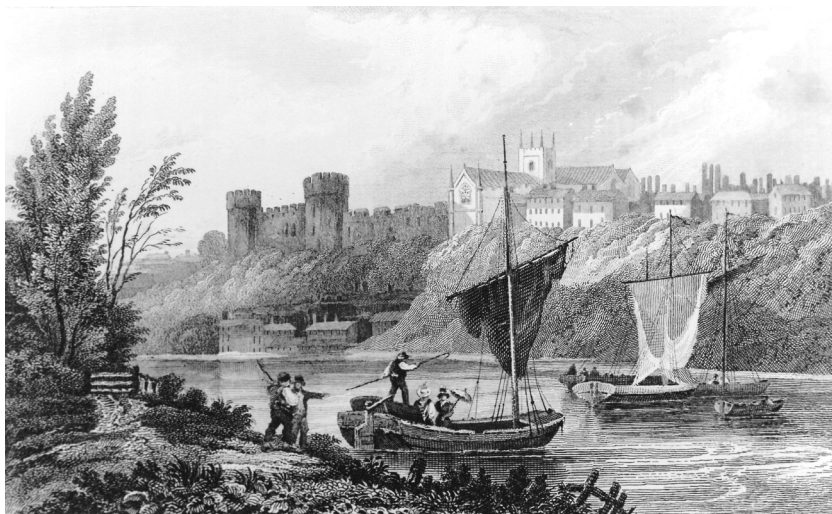
of the previous day; this I could effect with great facility learning forty or fifty lines of Virgil or Homer, whilst I was in morning chapel; but this exercise was utterly useless, for every verse was forgotten in forty-eight hours. I was not idle, and with the exception of versification, generally worked conscientiously at my classics, not using cribs. The sole pleasure I ever received from such studies, was from some of the odes of Horace, which I admired greatly. When I left the school I was for my age neither high nor low in it; and I believe that I was considered by all my masters and by my Father as a very ordinary boy, rather below the common standard in intellect.<sup>38</sup>

Forced into a straitjacket of classical learning and physically separated from the security of family surroundings, Darwin was plainly unhappy at school. One means of escape was going home. Since the distance from school to The Mount was little more than a mile, across the river and up the hill, he sometimes played truant and ran there after the evening roll call. The sense of freedom was very real on these occasions. The familiar aura of The Mount, with his sisters looking up from their books and Spark the black-and-white mongrel (“dear little black nose”) welcoming him noisily in the yard, reflected a world achingly apart from boarding school. Both at the time and much later on, Darwin believed these brief connections with home helped him come to terms with long periods away from the family. “This I think was in many ways advantageous to me by keeping up home affections and interests.”<sup>39</sup>

Childish fear accompanied the pleasure. He needed to run fast to get back before the final lockup for the night, since expulsion loomed if he failed. When in doubt, he panted out earnest requests to God to help him. “I well remember that I attributed my success to the prayers and not to my quick running, and marvelled how generally I was aided.”<sup>40</sup>



Erasmus was by far the most important figure in Darwin’s expanding horizons during this period. In his school days, Erasmus devoted himself to chemistry, a passion that ran in his combined Wedgwood and



3. Shrewsbury from the Welsh Bridge. The castle and Shrewsbury School can be seen.

Darwin blood. Charles came to love the subject just as fervently. Together they planned and equipped what they were pleased to call their “Laboratory”: in their imagination the finest of experimental centers although in actuality little more than an unused room in the outbuildings of The Mount.

The Lab possessed a range of chemical apparatus restricted only by the boys’ ability to “milk the cow,” a way of referring to their father’s tightly fastened pockets, and expensive glassware was the subject of much discussion between them as to the advantages of this or that shape of jar. They invested in an Argand lamp, the main means at that time for supplying a flame for heating chemicals. Uncle Josiah Wedgwood sent them some fireproof china dishes—a Wedgwood patent—and an impressive industrial thermometer. The Lab also boasted a blowpipe of primitive specifications and equipment for measuring liquids.<sup>41</sup>

As their interests developed to include the chemical analysis of minerals and crystallography, Erasmus managed to buy a goniometer (an instrument to measure angles). When a windfall of £10 from an aunt arrived, he could hardly decide between a plethora of conflicting

desires: it was too much to hope for an air pump, although he longed to perform experiments in the vacuum that this could produce. As soon as he was master of his own financial account with Dr. Darwin, he spent £8.10 shillings on chemical items: a huge sum for the time, which Dr. Darwin solemnly warned should not happen again. There were no further scientific extravagances until Erasmus left home for Cambridge University in 1822.

The subject was not at all unusual for a pair of schoolboys to take up in the 1820s. The great practical and theoretical changes in contemporary science were capturing the imaginations of people from all walks of life, aided by plenty of popular literature. Chemistry seemed to the boys to be the most awe-inspiring, the most visionary of the sciences, where practitioners delved into a world of unseen elements in search of the composition of matter. To study chemical properties was to catch at the ultimate forces of nature itself. Moreover, their paternal and maternal grandfathers had also been deeply interested in the field, the one celebrated for writing about the progress of chemical technologies and the other applying chemical knowledge in his quest for a perfect glaze and suitable combinations of clays for chinaware. As well as conducting his own experiments, Wedgwood organized a subscription fund to support Joseph Priestley's innovative chemical research, supplying him with equipment from the family manufactory.<sup>42</sup>

The Darwin brothers were primarily interested in determining the composition of commonplace chemical substances, mostly by producing "calxes," or oxides. The procedure was laid out in William Henry's *Elements of Experimental Chemistry* (1819), a textbook known for its exposition of John Dalton's work on atomic structure and mentioned by the boys several times as being in their possession.<sup>43</sup> They analyzed any interesting minerals they could obtain or the metallic residues in coins and various domestic materials such as macerated tea leaves, interspersed with the purchase of compounds that could be purified by crystallization into their constituent elements. Some of these raw materials were given to them by friends and relatives once their hobby became known. Mostly it was Thomas Blunt, the local pharmacist and dispensing apothecary, who supplied small samples of different substances for

their research. Already known to the boys through Dr. Darwin's medical practice, Blunt was thought by them to be the best chemist in the world.

The significance of these first chemical experiences can easily be overlooked when considering the eventual sweep of Darwin's intellectual trajectory. Yet he was here establishing the footing for a lifetime in investigative science.



When Erasmus finished school in 1822 and went to Cambridge University to study medicine, Darwin dutifully carried on the affairs of the Lab, performing experiments and analyses in the school holidays at his brother's long-distance instruction and following up his own interests.

The niceties of experimental work were very appealing to him. He usually heated substances over an open flame until they bubbled or dissolved, always an attractive part of the chemical armory. Some samples probably exploded. Work with acids was just as gratifying in its visual effects. He loved the gadgets of chemistry, the precise measurements, the delight of equipment, and he thoroughly enjoyed the manipulations that were required to make an investigation come right. He was always on the lookout for bits and pieces for investigations, borrowing things from the kitchen or garden storerooms or persuading a sister to give up sewing needles for some essential project. One sorry entry in the doctor's account book shows how Charles was obliged to pay Nancy, the nursery nurse, the sum of ten shillings "on account of the loss of her brother's tools." These homemade improvisations were regarded by Darwin as more than equal to any shop-bought item, and he was never as content as when fiddling about trying to make ends meet in an appropriate instrument.

His chemical activities continued at school. A school friend recorded that Darwin "spent some time, most evenings, with a blow-pipe at the gas-light in our bedroom."<sup>44</sup> Since this meant puffing air by mouth through a brass tube into the raw flame and balancing chemicals in his free hand, ready to insert them into the gas at a suitable moment, the friend was rather casual about the possible dangers. While Erasmus was

called “Bones” because of the medicines prescribed by Dr. Darwin to strengthen his lanky frame, Charles was for a time “Gas” to the other boys.<sup>45</sup> He only stopped these investigations after receiving a public rebuke from the headmaster accompanied by a pull on his ears. “He called me very unjustly a ‘poco curante,’ and as I did not understand what he meant it seemed to me a fearful reproach.”<sup>46</sup>

Though friends and sisters laughed at the boys’ enthusiasms, Dr. Darwin sympathized. He had more than a passing knowledge of the subject himself: he had attended the famous chemist Joseph Black’s lectures during his days as a medical student in Edinburgh and briefly lodged with Black for private tuition. The young doctor’s graduation thesis on the physiology of color perception was partly explored with Black’s chemical teaching in mind.<sup>47</sup>

Dr. Darwin consequently reacted with equanimity to the news from Shrewsbury School that his younger son was not much of a classical scholar. From Charles’s obvious scientific interests and the pleasant hours shared in the garden and carriage, he could see it was Butler’s emphasis on traditional learning that was generating indifference.

The idea that he should remove the boy from school began to take root. He leaned to the view that Charles was best suited to become a doctor rather than any other kind of learned gentleman: a doctor like himself and his father before him and as he intended Erasmus to be. As a physician, he must have reasoned, Charles could direct his mind to useful ends; he could carry on collecting natural history specimens and enjoy an adult life much like his own, surrounded by plants, books, children, and the material goods of a cultivated medical man well situated in provincial English society.

None of these thoughts would necessarily have led to action had not Erasmus been due to leave Cambridge University in 1825. Erasmus needed to attend courses at an authorized medical school to fulfill the requirements for an M.B. degree. It was this, more than anything, that brought Dr. Darwin to a firm decision: he would take Charles away from school earlier than usual and send him with his brother to Edinburgh Medical School. Erasmus could take the requisite courses and study for the qualifications necessary for medical practice. The boy

Charles could keep Erasmus company, attend a few of the less specialized courses, and stay on until he was old enough to begin his own medical degree. The two would lodge and work together, keeping each other up to the mark.

And so, on June 17, 1825, at the age of sixteen, Darwin left Shrewsbury School: “for ever,” as he gratefully put it. The Edinburgh scheme sounded like a wonderful improvement. Erasmus was equally pleased. “Are you making any plans with regard to Edinbororough [*sic*]?” he asked Charles in a letter: “any nice little stony excursions? We’ll have rare fun in planning if we dont have any in performing them. I’ve made five hundred for my share. How shall you fancy going there by sea? it is a 14 hour’s passage from Liverpool to Glasgow. We can stay a day or two at ye Ile of Man if either of us feel inclined to give up the ghost [i.e., to be seasick], which wont be very unlikely I think. I shall be down in about 3 weeks & then Gracious Heavens! how *you* will chatter but.”<sup>48</sup> Symbolic of the new life about to begin, it seems that around this time his sisters stopped calling him “Bobby.”

The only cloud on the horizon as far as Charles could see was that if they both went away, Spark the dog might go to Marianne now that she was married and had a home of her own.

## INDEX

Page numbers in italic refer to illustrations.

- Abercrombie, John, 210  
abolitionism, 36–37, 103–4, 105, 392  
Acland, Henry, 372  
*Adam Bede* (Eliot), 354  
Adelaide (English queen), 124, 125  
*Adventure* (ship), 133, 139, 142  
Agassiz, Alexander, 497  
Agassiz, Louis, 240, 264, 330, 337–38, 352, 394; archetypes, 317; debates with William Barton Rogers, 381  
alcohol, abstention from, 26–27  
Alison, Robert Edward, 147  
Allfrey, C. H., 536  
Allingham, William, 436  
*All the Articles of the Darwin Faith* (Morris), 466  
*Alton Locke* (Kingsley), 316  
*Analogy of Revealed Religion* (Butler), 361  
*Anatomie des mollusques* (Cuvier), 111  
anatomy instruction, 29–31; independent schools of, 29–30, 39; medical students, 253  
Anglican Church, 11, 48; Bridgewater Treatises, 218, 317; Church Missionary Society, 126; *Essays and Reviews*, 370, 371, 402; and geology, 65; London Missionary Society, 74, 171; missionaries, 171, 173, 174, 185, 186  
animals: close human connection to, 476–78, 477; experimentation, campaign opposing, 504–6. *See also* variation  
animism, 452, 513  
*Annals and Magazine of Natural History*, 305, 322, 328  
annelids. *See* earthworms  
anthropology: Darwin's early concepts, 258; Darwin's questions about, 236; imperialism in early encounters, 131; racial classification, nineteenth century, 236–37. *See also* human origins; racial hierarchies  
*Antiquity of Man* (Lyell), 379  
Anti-Slavery society, 103  
Ant lion (insect), 176  
apes, as focus of criticism of evolutionary theory, 382, 394–97, 395  
Appleton, William Henry, 380–81  
Argentine Pampas, 133–34  
Ash, Edward John, 49–50  
*Athenaeum* (periodical), 353–54  
Atlantis theory, 300–301  
Audubon, John James, 39  
Austen, Jane, 3–4, 86  
*Autobiography* (Darwin), 57, 81; writing, 510–14  
Aveling, Edward, 485, 490, 529  
Babbage, Charles, 184, 218–19, 235  
Bacon, Francis, 349  
Bahia Blanca, Argentina, 112–13; fossil discoveries, 116–19  
Bahia Wulaia (Woollya Sound), 131  
Banks, Joseph, 170  
Barclay, John, 39  
barnacles, study of, 262–66; Darwin's Royal medal, 287  
Barrande, Joachim, 352  
Barraud, Herbert, 533  
Bartlett, Abraham, 398  
Bate, Charles Spence, 474–75  
Bates, Henry Walter, 319–20, 322, 425

- Bay of Islands, New Zealand, 174–75  
*Beagle* expedition (1831–36): Australia, 175–77; Bahia Blanca, fossil discoveries, 116–19; Bahia Blanca to Tierra del Fuego, 112–13; Brazilian coastline, 105–6; clock calibration, 82–83; Cocos (Keeling) Islands, 177–80; conflict between Darwin and Robert McCormick, 106–8; dangerous portions, 112–13; departure (1831), 86; Earle’s oil paintings, 135–36; Falkland islands, 133; FitzRoy’s challenges, 151–52; Fuegians on board, 122–26, 123; Galápagos Archipelago, 161–70; mapping and surveying, 100–101; maps of, 88–89; New Zealand, 174–75; physical limitations, 75; preparation for expedition, 82–85, 83, 84; purposes of expedition, 90–91; Rio Santa Cruz stop, 140–41; Tahiti, 170–74; Tasmania, 177; Woollya Sound mission, 131–32  
Beaufort, Francis, 74–76, 78, 81, 90–91, 151, 190  
Becker, Lydia, 428  
Beechey, Frederick William, 171, 178  
beetles, study of, 52, 348–49; capturing *Panageus*, 54; entomology, 52–55  
Bell, Charles, 254, 476–77  
Bell, Thomas, 201, 246, 326, 332  
Benchuca bugs, 150  
Bennett, John Joseph, 331  
Bentham, George, 332, 379, 424  
Bentham, Jeremy, 220  
Bernardin de Saint-Pierre, Jacques-Henri, 182  
*Bibliothèque Universelle* (Swiss journal), 359  
biogenetic law, 455–57  
*Birds* (Gould), 246  
bird skins, preservation of, 36  
Black, Joseph, 21, 23, 30  
Blackwell, Antoinette Brown, 461  
Blunt, Thomas, 19–20  
Blyth, Edward, 294, 305, 322, 440–41  
*Body-Snatcher* (Stevenson), 29  
Bonham Carter, Alice, 507  
Bonpland, Amié, 66  
*Book of Common Prayer*, 48  
Bopp photographic firm, 479  
*Botanische Mittheilungen* (Nägeli), 425  
botany: “aliveness” of plants, 63; cross-fertilization, 295–97; Darwin’s interest in, 62–63; distribution of seeds, 297–301; Hooker’s contributions to evolutionary theory, 379–80; Julius von Sachs’ Würzburg laboratory, 525–26; pollination, 295–96; *The Power of Movement in Plants* (Darwin), 525–26; root tip movement, 525–26. *See also* Darwin, Charles: scientific work  
Boué, Ami, 42–43  
Boulton, Matthew, 26  
Bowen, Francis, 359, 381  
Brewster, David, 218  
*Bridgewater Treatises* (theological tracts), 218  
British Association for the Advancement of Science, 235–36; meeting (1860), 371–76  
British Museum, 528; insect collection, 52  
Broca, Paul, 449  
Brodie, Jessie, 278  
Brodie, Sir Benjamin, 271  
Brogi, Giacomo, 479  
Bronn, Heinrich, 352, 408–9, 467  
Brooke, Sir James, 322  
Brown, Robert, 107, 212, 326, 332  
Browne, Sir Thomas, 210  
Browne, William, 38–39  
Browning, Elizabeth Barrett, 211, 406  
Browning, Robert, 406, 437  
Buchner, Ludwig, 529  
Buckland, William, 190  
Buckle, Henry, 315, 316  
Buckley, Arabella, 498, 528  
Buffon, Georges-Louis Leclerc, Comte de, 423–24  
Bulwer-Lytton, Edward, 264  
Bunbury, Charles James Fox, 285, 307, 353  
Burne-Jones, Edward, 462  
Busk, George, 33, 383, 412, 416  
Butler, Joseph, 361  
Butler, Samuel, 16, 190, 523–24  
Bynoe, Benjamin, 107, 150, 167–68, 306  
Byron, George, 162, 163  
  
Cambridge Ray Club, 63  
Cambridge University, 47–52  
Cameron, Julia Margaret, 436–38, 479, 482  
Campbell, Archibald, 256  
Campbell, George (duke of Argyll), 448  
Canning, George, 75  
Cape of Good Hope, 183  
Cape Verde islands, 86, 91–93; geology, 93–96  
Carlyle, Jane, 10, 197  
Carlyle, Thomas, 532–33

- Carpenter, William Benjamin, 316, 383, 415, 443, 467  
Carus, Julius Victor, 352, 409, 511, 525  
Case, George, 11  
Castlereagh, Lord, 73, 75, 417  
Cattell, John, 297  
Chagas disease (*Trypanosoma cruzi*), 150  
Chambers, Robert, 254, 373–74  
Chambers, William, 254  
*Chambers's Edinburgh Journal*, 254  
Chapman, John, 315  
chemistry, Darwin's boyhood interest in, 17–21, 29, 30  
Chester, J. L., 521  
child development, 237–38, 239; “Biographical Sketch of an Infant” (Darwin), 509–10; character studies and photography, 483–84; facial expressions, 475  
Chiloé Island, 146  
Christian Socialist movement, 359, 360, 463  
Christ's College (Cambridge), 48–52, 49  
Church Missionary Society, 171  
clairvoyance, 274–75; spiritualism and séances, 492–95  
Claparède, Édouard, 409, 449  
Clark, Andrew, 536  
Clark, James, 211  
Clarke, Edward, 461  
classification schemes, 25, 337–38, 476  
Clift, William, 190  
clock calibration, 82–83  
Cobbe, Frances Power, 451–52, 454, 504  
Cobbett, William, 393  
Cocos (Keeling) Islands, 177–80  
Colburn, Henry, 257  
Coleridge, Samuel Taylor, 26  
collection practices, 11–12, 247; Darwin's, on *Beagle* expedition, 99–101, 110–12, 117, 139–40, 186–89; Darwin's insect activity while at Christ's College, 52–55, 53; Plinian Society expeditions, 37; right to take material, 33, 99–100  
Collier, John, 530, 531  
colonial expansion (UK): colonial powers, 91; information and artifact gathering, 33  
Combe, George, 254, 319  
Concepción, Chile, 153–54, 154  
Congress of Vienna, 73  
connectivity, concept of, 206, 316, 344  
*Constitution of Man* (Combe), 319  
Conway, Moncure Daniel, 410, 489, 534  
Cook, James, 82, 91, 170  
Cooke, Robert, 497, 533  
Copley Medal, Royal Society, 415–16  
copper mining, 149  
coral reefs, 178–180, 198–99, 497; *The Structure and Distribution of Coral Reefs* (Darwin), 245  
Corfield, Richard, 147  
*Cours de Philosophie Positive* (Comte), 218  
cousin marriages, 426, 450–51  
*Cousin Phillis* (Gaskell), 319  
Covington, Syms, 102, 136, 138, 153, 165–66, 175, 178, 187; Darwin's assistant, post-*Beagle*, 196; work on Darwin's diary, 201  
Cresy, Edward, 268  
Crichton-Browne, James, 482  
Crofts, Ellen Wordsworth, 509  
Croll, James, 418  
cross-fertilization in plants, 295–97, 501–2.  
  *See also* botany  
Crystal Palace (Great Exhibition, London), 315  
culture: Enlightenment culture, 23; as extension of biology, 130–31, 458, 460–61; Indigenous culture, 400  
Curzon, Lady, 27  
Cuvier, Georges, 33, 35, 39, 111  
  
Dalton, John, 19  
Dana, James Dwight, 345, 352, 497  
*Daniel Deronda* (Eliot), 408  
Darwin, Amy Ruck, 496, 508–9  
Darwin, Anne Elizabeth (daughter), 237, 270, 278–82, 280, 480  
Darwin, Bernard (grandson), 509, 534–35  
Darwin, Caroline (Wedgwood) (sister): on abolitionism, 104; Charles, correspondence with, 30–31, 47, 67, 98, 128–29, 150, 174, 181; childhood, 9, 15; Erasmus's final illness, 532, 536; marriage to Josiah Wedgwood, 217; social life, 212, 270  
Darwin, Charles, *Beagle* expedition: Australia, 175–77; Botafogo, Brazil cottage sojourn, 105–6, 108–9; Cape Verde islands, 91–93; Chilean coast, 145–46; collection practices, 99–101, 110–12, 117, 139–40, 186–89; connections with family, 115–16; crew, relationships with, 101–2; earthquake on Chilean coast, 152–55, 154;

- Darwin, Charles, *Beagle* expedition  
(*continued*)  
financial concerns, 138–39; FitzRoy,  
working relationship with, 96–97, 142–43;  
geological theories, 93–96, 141–42,  
145–46, 155–56; happiness and enjoyment,  
120; homeward voyage, 181–83, 186–89;  
illness in Chile, 149–50; Indigenous  
people, encounters with, 127–31; initial leg  
of, 86–90; inland excursions, 99–100,  
109–10; inland excursions, Africa, 183–84;  
inland excursions, Andes, 156–60, 157;  
inland excursions, Argentina, 133–35,  
136–39; inland excursions, Chilean  
mountains, 147–49; inland excursions,  
map, 137; invitation to, 76–78; local  
guides, use of, 101; Orundellico (Jemmy  
Button), last encounter with, 143–44;  
personal diary and record-keeping, 85,  
98, 121; preparation for, 82–85; scientific  
procedures, 97; Tahiti, 170–74
- Darwin, Charles, colleagues: Alfred Russel  
Wallace, 294, 305–6, 308, 492; Alfred  
Russel Wallace, after *Origin of Species*,  
399, 401–2; Alfred Russel Wallace, break  
with over theory, 441–43; Alfred Russel  
Wallace, compromise and joint paper,  
325–28, 327; Alfred Russel Wallace as alter  
ego, 317–18; Alfred Russel Wallace's essay  
and Lyell, 325–26; Alfred Russel Wallace's  
request regarding *Origin of Species*, 312–14;  
Asa Gray, 329–31, 380–81; birthday tribute  
from German naturalists, 518; Charles  
Lyell, 301, 498; encouragement of others by  
Darwin, 430–31; Joseph Dalton Hooker,  
298, 301, 325–26; Louis Agassiz, conflict  
with, 337–38; Richard Owen, 361–63;  
support for *Descent*, 449–50; support for  
*Origin of Species*, 365–66; visitors in later  
years, 487–89; X Club, 416–17
- Darwin, Charles, education, 11, 15; Cambridge  
University, 47–52; chemistry, interest in,  
17–21, 29, 30; Edinburgh, arrival in,  
27–29; Edinburgh Medical School, 21–22;  
Henslow as mentor, 61–63, 62; Henslow's  
"Friday evenings," 63–66; Humboldt,  
influence of, 66–67; medical coursework,  
29, 31–32, 33; Shrewsbury school, 15–17
- Darwin, Charles, evolutionary theory:  
barnacles and study of adaptations,  
264–66, 282–83; *Beagle* expedition,  
synthesis of ideas upon return, 198–202;  
connectivity, concept of, 206; corals,  
178–80; "evolution," use of term, 342;  
finches, 168–70, 169, 259, 259–60; heredity,  
422–25; Malthus, influence of, 219–22;  
fossil discoveries, 118; natural selection,  
218, 222–23, 304–5, 330, 341–42; natural  
selection, full evidence for, 411–12;  
notebooks, role in development of  
concepts, 207–9, 209; on origin of life,  
468–69; pangenesis, 423–25; plants and  
cross-fertilization, 296–97; "principle of  
divergence," 290; racial groupings,  
observations, 126–31, 133; reaction to  
*Vestiges*, 252–53, 255–56; reception of  
ideas in mid-nineteenth century  
England, 315–17; responses to anticipated  
objections, 342–43; "selection," concept  
of, 290; sexual selection, 457–61; social  
networking, and sharing of ideas, 209–10;  
speciation, long essay concerning, 246–51;  
species and transmutation, 202–8; species  
in Australia, 176–77; species in Galápagos  
Archipelago, 164–68, 165, 167; species  
theory, development of (1842), 240–42;  
terminology used to describe, 342;  
variation and inheritance, 288–89;  
Wallace's work, 311–12; Wallace's work,  
Darwin differentiated from, 345; Wallace's  
work, Darwin's symmetry with, 323–24;  
work on during courtship of Emma,  
228–29. *See also* evolutionary theory
- Darwin, Charles, geology: ambition, 189;  
Andes Mountains and geological time  
frames, 147–49; Earth, age of, 418; earth-  
quake, 152–56; Lyell, friendship with,  
198–99, 199; Scotland trip (1838), 213–14;  
on St. Jago, 92–96; Welsh trip, 67–72
- Darwin, Charles, personal characteristics  
and beliefs: abolitionism, 392–93; active  
and sporting nature, 113–14; aesthetic sense,  
511–12; "eye" and photographic memory,  
169–70; philanthropy, 303; physical  
appearance, 8–9, 81, 437–38; record-  
keeping, habit of, 277–78; seasickness, 86,  
87, 90; self-estimation, in memoir, 510–12;  
truth, desire for, 313–14; work ethic, 502
- Darwin, Charles, personal life: abolitionism,  
103–4; *Beagle* expedition, return from,

- 195–98; “books read,” 239; burial, 537–39, 538; bust, sittings for, 434–35; childhood and early life, 8–22; children, birth of, 237–38; children’s illnesses, 324–25, 328–29, 333; cold-water showers, 275; daughter Anne’s death, 278–82; death of, 536; Downe village, local life, 302–4; Down House, Kent, 55, 243, 243–45, 270, 301–2; Emma Wedgwood, courtship of, 223–28; estate of, 536; family background, 3–5; family dogs, 477–78; family life with children, 269–70; family nicknames, 432; Fanny Owen, romance with, 58–60, 72; father’s disappointment in, 45; father’s estate, 269; father’s funeral, 269; financial expenditures and investments, 138–39, 231–32, 276–78; Gower Street residence (Macaw Cottage) with Emma, 230; health diary, 271; Hooker, friendship with, 536; Huxley, friendship with, 536; illness and health challenges, 211, 238–39, 267–68, 275–76, 412–14, 424–25, 507; inheritance, and financial independence, 198; later years, sojourns in London, 489–90; Maer Hall, 238–39, 240; marriage, decision-making process, 212–13, 214–15, 216; mother, loss of, 13–15; photographs and portraits, 10, 227, 246, 288, 413, 436–38, 437, 504, 506–7; photographs and portraits, sittings for, 530–31, 534, 533; Plinian Society, 37–39, 38; political views, 518–19; shooting and hunting, interest in, 32, 56–57; taxidermy, interest in, 36–37; Tennyson, meeting with, 436; Wallace, friendship with, 527–28; water cure, 272–75, 274, 350, 352, 412–13; wedding, 229–30
- Darwin, Charles, religious views: afterlife, lack of belief in, 281; on Bible, veracity of, 182; on Christianity, 120–22, 512–13, 529; clerical vocation, preparation for, 45–47; daughter Anne’s death as point of dissociation, 281–82; Emma’s concerns for, 228, 233–34; on mankind’s place in nature, 112; on missionaries, 185–86; natural selection incompatible with Creator, 360–61; shared with Emma during courtship, 227–28
- Darwin, Charles, scientific work: areas of weak understanding, 261–62; association memberships, 234; barnacles, study of, 262–66, 282–83; botanical experimentation, 294–97, 385–89, 414–15, 438–39, 499–503, 500; botanical experimentation, climbing plants, 503; botanical experimentation, distribution of seeds, 297–301; caricature and satire of, 486–87, 487; collecting, interest in, 11–12, 52–55, 53; collecting practices, Galápagos plants, 247; Copley Medal, Royal Society, 415–16; Darwin and Wallace double paper, 333–34, 335–36; development as scientist, 121; earthworms, study of, 515–17, 517, 526–27, 533–34; facial expression, study of, 474–76, 483–85; family’s children, documentation of development, 237–38, 239; Galton’s questionnaire, 491–92; homology, 266–67; honorary degrees, 462–63, 519–20; inbreeding, investigation of, 425–26; intellectual network, 191–92; medals, nominations for, 286–87; microscopes, 56, 263, 499, 501, 525; natural history, interest in, 33–36, 52–55; natural history expedition, desire for, 67–68; naturalist, reputation as, 485–86; on origins of life, 343–44; philosophical reading, 210–11; pigeons, experimentation with, 289–94, 291; Robert Grant’s influence, 39–44; Royal Medal, 287; Royal Society meeting (1866), 419–20; scientific colleagues, 283–86; society memberships, 235–37; “tree of life” metaphor, 343–44; Wales expedition (1831), 68–72; Wallace’s and Darwin’s papers to Linnean Society, 331–32; Wallace’s concepts and Darwin’s reaction, 312–14. *See also* science
- Darwin, Charles, writing: autobiographical memoir, 510–14; autobiographical style, 339; desire to write a book, 93; diaries, 85, 91–92, 93, 98, 121; diary, preparation for publication, 201; geological books, 245–46; John Murray’s publishing house, 258; *Journal of Researches*, 234–35, 258; nature writing, 98–99; notebook and diary-keeping, 207–9, 209; *Origin of Species*, 334–35, 338–39; *Origin of Species*, analogies and illustrations, 339–40; *Origin of Species*, proofreading and editing, 348;

- Darwin, Charles, writing (*continued*)  
plagiarism, accused by Samuel Butler, 523–24; on publication of his *Beagle* account, 191. See also *The Descent of Man* (Darwin); *Origin of Species* (Darwin)
- Darwin, Charles Waring (son), 324–25, 328–29
- Darwin, Dr. Robert (father): on Darwin's *Beagle* expedition invitation, 77–78; on Darwin's career, 181–82; on Darwin's marriage bond, 224; desire for Darwin to pursue medicine, 21–22; disappointment in son, 45; family background, 4; final illness and death, 268–69; financial investments and management, 6–8, 18–19; gardening, 12; medical education and career, 8, 27; parenting style, 13; physical appearance, 13; portrait, 7
- Darwin, Elizabeth “Bessy” (daughter), 270, 278, 432, 463–64; religious beliefs, 472
- Darwin, Elizabeth Pole (step-grandmother), 27
- Darwin, Emily Catherine (sister), 9, 10, 268, 269, 273; correspondence with, 106, 141–42; death, 433; mother, loss of, 14–15
- Darwin, Emma Wedgwood (spouse): on Charles' health, 268; on Charles' illness, 413–14; Charles' last words, 536; on Charles' religious views, 514; Charles' water cure at The Lodge, 272–73; child-bearing, 325; daughter Anne's death, 278–82; family life, 270; on grandchild Bernard, 509; Royal Society soiree (1866), 419–20; as nurse for Charles, 238–39; photographs and portraits, 226, 247; proofreading assistance of, 348; religious beliefs, concern for Charles', 228, 233–34; scarlet fever, 399; Tennyson, meeting with, 436; wedding, 229–30. See also Wedgwood, Emma (cousin)
- Darwin, Erasmus (grandfather), 4, 43, 178, 428–29, 520–21; abolitionism, 103–4; “doctrine of necessary progression,” 344; early evolutionary thinking, 24; medical training and practice, 23–24; portrait, 25; scientific poetry, 24–26; *Zoonomia*, 26, 43, 206–7, 522
- Darwin, Erasmus (grandson), 524
- Darwin, Erasmus Alvey (brother):  
Cambridge University, 19, 20, 21; Charles, correspondence with, 122;  
Charles, relationship with, 211–12; on Charles' illnesses, 267; childhood, 9–10; death and funeral, 531–33; Edinburgh, arrival in, 27–29; Edinburgh Medical School, 21–22; education, 15, 17–18; estate of, 535–36; London life, 196–97, 197, 377, 419; photograph of, 435; social life, 302; on Wallace-Darwin relationship, 467
- Darwin, Francis (son): Cambridge University, 433, 434; childhood, 270, 300, 348–49; father's honorary Cambridge degree, 519; on father's personal habits, 276, 277; as father's secretary and assistant, 496, 499, 502–3; on father's work habits, 502; on father's writing, 339; knighthood, 529; *Life and Letters of Charles Darwin*, 480; photograph of, 435; in Sachs' Würzburg laboratory, 525–26; séance, 493–94; wife Amy's death, 508–9
- Darwin, George (son): on age of Earth, 418; Cambridge University, 433–34; childhood, 270; collecting expeditions, 389; divorce, views on, 470–71; executor for uncle Erasmus, 535; family history and pedigree, 521–22; father's honorary Cambridge degree, 519; on father's personal habits, 275; knighthood, 529; line drawings by, 479; measles, 324; séance attendance, 492–93, 494
- Darwin, Henrietta (Litchfield) (daughter): anti-vivisection campaigns, 505; brother's death, 328; childhood, 270, 278; on family history and pedigree, 521–22; on father's scientific discoveries, 43–44, 292–93; illness, 324; in London, 419, 489–90, 532; marriage, 471–73; marriage of, 463; photograph of, 432; proofreading assistance to father, 426–27; sister's death, 281; social visits during father's later years, 488; on supernatural, 493–94; travels, 432
- Darwin, Horace (son), 325, 348–49, 413–14, 434, 435; father's honorary Cambridge degree, 519; knighthood, 529; marriage, 524
- Darwin, Leonard (son): childhood, 270, 294–95, 296, 348–49; on father's final days, 511–12; photographs of, 247, 435; photography, interest in, 479–80; scarlet fever, 399; sister-in-law Amy's death, 508–9; Unionist views, 519; Woolrich College entrance exam, 434

- Darwin, Marianne (Parker) (sister), 9, 22, 115, 268–69, 433
- Darwin, Mary Eleanor (daughter), 243
- Darwin, Mary Howard (grandmother), 26
- Darwin, Sir Francis Sacheveral, 115
- Darwin, Susan (sister): and Adam Sedgwick, 69; Charles, correspondence with, 115, 160, 175, 245; childhood, 9, 15, 60; death, and estate of, 433; father, relationship with, 181–82, 268; father's estate, 269; social visits, 273
- Darwin, Susanna Wedgwood (mother), 224, 536; death of, 13–14; education and wealth, 3; marriage, 4; wealth, 6
- Darwin, William (son): banking career, 433; Cambridge University, 377; childhood, 237, 239, 243, 270, 300; education, 278, 291; executor for uncle Erasmus, 535–36; at father's funeral, 539; line drawings of, 479; mother, correspondence with, 348; photographs of, 246, 435; photography, interest in, 479–80; on uncle Erasmus's death, 532
- Darwiniana* (Gray), 486
- Darwiniana* (Huxley), 486
- Darwinism* (Wallace), 486
- "Darwinism," use of term, 486
- Das Kapital* (Marx), 490–91
- Daubeny, Charles, 372
- Davies, Richard, 175
- Davy, Humphry, 294
- Davy, John, 294
- Dawkins, William Boyd, 465
- Dawson, John William, 411
- Day, Thomas, 26
- De Candolle, Alphonse, 222, 379
- Defoe, Daniel, 3
- De la Beche, Henry, 286
- Descent of Man, The* (Darwin), 126, 447, 505; publication and publicity, 464–65; reviews and reactions, 465–67, 466, 469–71; revised editions, 496
- "descent with modification," 342
- De Vries, Hugo, 428
- diary-keeping: of *Beagle* expedition, 121; Cape Verde islands, 91–92, 93; Darwin's practices, 85, 98
- Dickens, Charles, 354
- diphtheria, 324
- Disraeli, Benjamin, 252
- divorce, George Darwin's views, 470–71
- Dixon, Edmund, 294
- Dixwell, E. S., 337
- Dodgson, Charles, 480, 482
- Dohrn, Anton, 487
- domesticated animals and plants, 128, 130, 222, 249, 345, 421–22, 426–427. *See also* selection
- d'Orbigny, Alcide, 139, 204
- Down House, 55, 243, 270, 301–2
- Draper, John William, 373–74
- Drosera* species, 385, 386, 500, 500–501
- Du Chaillu, Paul, 394–95, 397, 411
- Duchenne, Guillaume, 481
- Duncan, Andrew, 31
- Dundreary, Lord (satire), 396
- Duns, John, 359
- Dupetit-Thouars, Abel, 167
- duty, as moral feeling, 454
- Dyer, William Thiselton, 500
- dysentery, 150
- Earle, Augustus, 86, 90, 105, 108–9, 117, 118–19, 135–36, 142, 174
- earthworms, study of, 526–27
- Edgeworth, Maria, 3
- Edgeworth, Richard Lovell, 26
- Edinburgh, Scotland: Darwin family's ties, 23–24; Medical School, 21–22; "as modern Athens," 27–28
- Edinburgh New Philosophical Journal*, 40, 43
- Edinburgh Review*, 369–70
- Edinburgh University, 28; natural history museum, 33; Plinian Society, 37–39, 38
- Edmonstone, Charles, 36
- Edmonstone, John, 36, 104, 127
- Edwards, W. H., 320
- Edward VII (Prince of Wales), 419
- Egerton, Phillip, 396
- Elements of Experimental Chemistry* (Henry), 19
- Elements of Geology* (Lyell), 378
- Eliot, George, 315, 316, 354, 407–8, 492–93
- El'leparu (York Minster), 123, 124–28, 130
- Ellesmere Canal, 8
- Ellis, William, 171
- Elwin, Whitwell, 346–48, 353
- embryological development, 455–57
- Emerson, Ralph Waldo, 410
- Engels, Friedrich, 4

- England: rural poverty, early nineteenth century, 3–4; social and political movements, turn of nineteenth century, 5–6; suffering oppression of working classes, 195–96. *See also* Victorian-era England
- English Men of Science* (Galton), 491
- Entomological Magazine*, 189
- Entomologist's Weekly Intelligencer*, 349
- entomology, 52–55
- Erskine, Fanny (Farrer), 524
- Essay on Classification* (Agassiz), 337–38
- Essay on Dew* (Wells), 402
- Essay on the Principle of Population* (Malthus), 219–20, 319
- Essay on the Theory of the Earth* (Cuvier), 35
- Essays and Reviews* (1860 tract), 402
- ethnology, 236–37. *See also* anthropology
- Etruria Works (pottery), 6, 26
- eugenics, 409, 428. *See also* Galton, Francis
- Evans, Mary Ann (George Eliot), 315, 316, 492–493
- evolutionary theory: caricature and satire, 486–87, 487; as “Darwinism,” 400; “evolution,” use of term, 342; “evolutionary tree,” 455–57, 456; *First Principles* (Spencer), 403–4; gender differences, 460–61; heredity, 422–25; Hooker's contributions, 379–80; late eighteenth century, 24; Lyell's contributions, 378–79; origins of life, 467–69; pangenesis, 423–25; photography and visual evidence, 479–84; prior claims to concepts, 402–3; self-generating universe, 26; “survival of the fittest,” 439–40. *See also* Darwin, Charles: evolutionary theory; *Origin of Species* (Darwin)
- Evolution Old and New* (Butler), 523
- Eyton, Thomas, 293, 353
- facial expression, study of, 447, 474–75; mental states and muscle movement, 476–78
- Facts and Arguments for Darwin* (Müller), 411
- Falconer, Hugh, 353, 356, 416
- Falkland Islands, 100–101
- Faraday, Michael, 353
- Farr, William, 450
- Farrer, Ida, 524
- Farrer, Thomas Henry, 450–51, 516, 524
- Fawcett, Henry, 377, 405
- Ferguson, Adam, 23
- Fertilisation of Orchids* (Darwin), 411–12
- Field Magazine*, 292
- finches, 168–70, 169, 204–5; beaks, 259, 259–60
- First Principles* (Spencer), 316, 403–4
- Fish (Jenyns), 246
- FitzRoy, Robert: background, 73–75; *Beagle*, preparation for 1831 expedition, 82–83; *Beagle* expedition, account of, 117; *Beagle* expedition, challenges, 133 151–52; *Beagle* expedition, initial leg of, 86–87; *Beagle* expedition, purposes of, 90–91; clock calibration, 82–83; Darwin, first meeting with, 81; Darwin, friendship with, 134, 142–43, 417–18; Darwin, friendship with post-*Beagle*, 306–7; Darwin, working relationship with, 96–97, 101–2; Darwin's conflict with over slavery, 104; death of, 417; Fuegian hostages taken to England, 124–25; geology, interest in, 93, 141–42; Indigenous people, attitudes toward, 129–31; inland expedition from Rio Santa Cruz, 140–41; marriage of, 196; measurements after Chilean earthquake, 154–55; on missionaries, 185–86; New Zealand, governor of, 306; on *Origin of Species*, 359; portrait of, 76; promotion to full captain, 160; on publishing of *Beagle* accounts, 190–91; “Recollections” (Darwin), 81, 471; views about Darwin's book, 375
- flatworms, 111
- Floreana, Galápagos Islands, 161, 166
- Flowers, William Henry, 376
- Flustra* genus, 41–42, 42
- Footprints of the Creator* (Miller), 317
- Forbes, Edward, 285, 300
- Formation of Vegetable Mould Through the Action of Worms, The* (Darwin), 533–34
- Fossil Cirripedia* (Darwin), 284
- fossil discoveries: Bahia Blanca, 116–19, 203; Cuvier's work, 35; *Megalonyx*, 117–18; *Megatherium*, 117–18, 136, 190; primates, 454–55; seashells, 148; theological frameworks, 317
- Fossil Mammalia* (Owen), 246
- Foster, Michael, 376, 500, 501
- Fox, Henry Stephen, 100
- Fox, William Darwin: British Association for the Advancement of Science, 236; clerical position, 71; Darwin, correspondence

- with, 53, 58, 162, 163, 209–10, 278, 280–81, 293, 333, 353; Darwin, friendship with, 50, 52, 135; Erasmus Darwin, friendship with, 52; fruit cultivation, knowledge of, 244; water cure, 272
- Franco-Prussian War, 464–65, 489
- Frankenstein* (Shelley), 26
- Frankland, Edward, 500–501
- Fremantle, W. F., 376
- Freycinet, Louis de, 178
- Fry, Clarence E., 533
- Fun* magazine, 485
- Für Darwin* (Müller), 411
- Fuseli, Henry, 26
- Gaimard, Paul, 178
- Galápagos Archipelago, 161–70; animal and plant species, 162–63; finches, 168–70, 169, 204–5; history of, 163–64; iguanas, 165–66, 167, 167; map, 162
- Galton, Francis: background, 428–30; Darwin, friendship with, 516; Darwin, shared ancestry, 521; eugenics, 470; on heredity, 428; photograph of, 429; questionnaire distributed to scientists, 491–92; séance attendance, 494
- Gärtner, Karl von, 295, 425
- Gaskell, Mrs., 318–19
- Gay, Claude, 145
- Geikie, Archibald, 418
- “gemmules,” 41, 423–24, 429–30
- gender differences in humans, 460–61
- Generelle Morphologie der Organismen* (Haeckel), 455
- Genesis of Species, The* (Mivart), 469
- Geoffroy Saint-Hilaire, Isidore, 352
- Geological Observations on the Volcanic Island and Parts of South America* (Darwin), 497
- Geological Society of London, 148, 189, 198
- geology: Andes Mountains, 147–49; and Anglican church, 65; in Cape Verde islands, 92–93; Earth, age of, 418; Earth history and Anglican church, 65; earthquake on Chilean coast, 152–55; Earth's structure, theories of, 34–36; Lyell's contributions to evolutionary theory, 93–95, 378–79; Sedgwick's expeditions in Wales, 68–72; Vale of Clwyd, Wales, 71
- George III (king), 24
- Gerard, Frederic, 261–62
- Gilman, Charlotte Perkins, 461
- Ginx's Baby* (Rejlander), 483–84, 485
- Gladstone, William, 6, 211, 372, 518–19, 528
- Glen Roy, Scotland, 213–14
- Gliddon, George Robbins, 394
- Goethe, Johann Wolfgang von, 43
- gold mining, 149
- Goodsir, John, 412
- Gosse, Philip Henry, 317
- Gould, Elizabeth, 260
- Gould, John, 140, 200, 203–4, 246, 260
- Gower Street, 230, 231
- Grafton, Duke of, 74
- Grant, Robert, 39–44, 40, 203, 512; appropriation of Darwin's research, 43–44
- Gray, Asa, 297, 329–30; as American gatekeeper for Darwin, 380–81; Darwin, correspondence with, 338, 431; Darwin, friendship with, 439; *Darwiniana*, 486; on Darwin's death, 539; on design, 390; *Origin of Species*, correspondence concerning, 353; photograph of, 391; publications mentioning natural selection, 336–37; on U.S. Civil War, 393; on variation, 431–32
- Gray, Jane, 439
- Greenough, George, 69
- Greenwich Mean Time, 82
- Gully, James Manby, 272–73, 278, 279
- Hacon, William, 524
- Haeckel, Ernst, 449, 455, 455–57, 518, 525
- Hague, James, 487
- Hall, Captain Basil, 235
- Hancock, Albany, 286
- Harvey, William Henry, 368, 379, 390
- Haughton, Samuel, 336, 359
- Hazledine, William, 3
- Hearne, Samuel, 362–63
- Henry, William, 19
- Henslow, Frances (Hooker), 283
- Henslow, Harriet Jenyns, 63
- Henslow, John Stevens, 61–63, 62, 76, 103, 300; correspondence of, 92, 106, 111, 142, 159, 353; on Darwin's flatworm discoveries, 111; Darwin's letters, extracts from, 189–90; as Darwin's mentor, 191–92; Darwin's specimens post-*Beagle* expedition, 200; “Friday evenings,” 63–66; on Lyell's concepts, 93–94; Terra del Fuego trip proposed, 72–73

- Herbert, John Maurice, 55–56  
Herbert, William, 387  
*Hereditary Genius* (Galton), 428  
heredity, 423–25, 428–30  
hermaphroditic species, 265–66  
Herschel, John, 64–66, 183, 184–85, 235,  
352; burial in Westminster Abbey, 539;  
correspondence with Lyell, 184, 218; Julia  
Cameron's photography, 437; on natural  
law, 218; on scientific methods, 241;  
*Vestiges* (Chambers), reaction to, 261  
*Heterogenie* (Pouchet), 467  
*History and Classification of Birds*  
(Swainson), 260  
HMS *Beagle*. *See* *Beagle* expedition  
HMS *Hyperion*, 135–36  
Hodgkin, Thomas, 236  
Holland, Henry, 211, 271–72, 428  
Holyhead Road, 8  
homeopathy, 274  
homology, 266–67  
Hooker, Frances Henslow, 283, 331, 498  
Hooker, Joseph Dalton, 200, 235, 246–48,  
248, 256, 261–62; botanical research and  
evolutionary theory, 379–80; Darwin,  
correspondence with, 468–69; Darwin,  
friendship with, 288, 307, 498; Darwin's  
Royal Medal, 287; Julia Cameron's  
photography, 437; marriage to Frances  
Henslow, 283; on *Origin of Species*,  
356; publications mentioning natural  
selection, 336; Thomas Huxley, friendship  
with, 285; Wallace's and Darwin's papers  
to Linnean Society, 331–32  
Hooker, Sir William, 389  
Hope, Thomas Charles, 29, 30, 34, 35,  
95, 155  
Hore, William Strong, 52  
Horner, Frances, 212, 285  
Horner, Joanna, 212, 230  
Horner, Katherine, 212, 217, 225, 244  
Horner, Leonard, 212, 226, 230  
Horner, Leonora, 212, 230  
Horner, Mary (Lyell), 212  
Horner, Susan, 212  
*Hornet* (periodical), 486–87, 487  
Horwood, John, 389, 414  
Howard, Mary (Darwin) (grandmother), 26  
Howarth, William, 410  
Hughes, Thomas, 463  
human origins: *The Descent of Man* (Darwin),  
447–61; gaps in knowledge, 454–55;  
mental powers of humankind, 451–52;  
Wallace's interest in, 322–23  
Humbert, Alois, 474  
Humboldt, Alexander von, 66, 121, 234, 319;  
portrait of, 87  
Hume, David, 23, 210  
Hunt, Holman, 462  
Hunter, John, 219  
Hutton, James, 23, 34, 94, 155  
Hutton, Richard Holt, 504  
Huxley, Julian, 397  
Huxley, Marian, 530  
Huxley, Thomas Henry, 261, 283–85, 284,  
371; and “ape debate,” 394–97, 395;  
correspondence concerning *Origin of*  
*Species*, 353; Darwin, correspondence  
with, 291–92, 338; Darwin, friendship  
with, 307; Darwin and Darwinism,  
defense of, 382–85, 416; *Darwiniana*, 486;  
on Darwin's pet dog, 478; debate with  
Wilberforce, 371–76; on *Origin of Species*,  
357, 363–64, 366–67; Oxford honorary  
degree, 462–63; “The Physical Basis of  
Life,” 468; séance attendance, 494–95; on  
transmutation, 285; Wallace, meeting  
with, 399–400; on X Club, 417; Zoologi-  
cal Society vice presidency, 377  
hybridization, 295, 422  
*Idylls of the King* (Tennyson), 354  
iguanas, 165–66, 167, 167  
Illot, Edward, 325  
*Illustrated London News*, 506  
imperialism, 91; collection practices, 100  
Impey, David, 49  
inbreeding, 425–26, 450–51  
Indigenous people: *Beagle* expedition  
encounters with, 127–31; Darwin's  
attitudes concerning, 125, 127, 129, 172,  
188, 242; efforts to protect, 236, 322–23;  
Fuegians on *Beagle*, 122–26, 123; New  
Zealand, 174; Wallace's interest in,  
322–23. *See also* racial hierarchies  
Industrial Revolution, 5–6, 28–29  
infant development. *See* child development  
*In Memoriam* (Tennyson), 405–6

- Innes, John Brodie, 302, 303, 529  
*Inquiries Concerning the Intellectual Powers and the Investigation of Truth* (Abercrombie), 210  
insectivorous plants, 386, 395, 500, 500–501  
*Insectivorous Plants* (Darwin), 501  
Isabela, Galápagos Islands, 161, 167  
*Island Life* (Wallace), 528  
islands: animal life on Galápagos Archipelago, 258–59; Chambers' concept of poverty of innovation, 256; geological land bridges, 300–301; plant seeds, distribution of, 297–301
- Jackson, William, 508, 539  
Jameson, Robert, 29, 33–36, 73, 285  
Jardine, William, 498  
Jenkin, Fleeming, 424  
Jenkins, John Edward, 483  
Jenner, William, 412, 413  
Jenyns, Harriet (Henslow), 63  
Jenyns, Leonard, 53–54, 63, 71, 76, 200, 246, 256–57, 285, 353, 502  
Jones, Henry Bence, 419–20  
*Journal and Remarks*, 1832–1836 (Darwin), 201  
*Journal of Researches* (Darwin), 203, 234, 257, 319, 346; reviews of, 234–35; revised version, 258  
journals. *See* diary-keeping  
Jowett, Benjamin, 252, 370  
Jukes, Joseph Beete, 367
- Kant, Immanuel, 454  
Keeling Islands, 177–80  
Kelvin, Lord (William Thomson), 418–19  
Kew Gardens, 246; Darwin receiving plant specimens from, 256, 276; Joseph Dalton Hooker as leading botanist of, 200, 246, 379, 414  
Kindermann, Adolphe, 479  
King, John, 493, 494  
King, Phillip Parker, 201, 435  
King, Phillip Gidley, 83–84, 98, 105, 165  
Kingsley, Charles, 316, 352, 359–61, 360, 396, 401, 463  
Knox, Robert, 29–30  
Kölreuter, Joseph, 295  
*Kosmos* (journal), 520–21  
Kotzebue, Otto von, 171
- Kovalevsky, Aleksandr, 427, 475  
Kovalevsky, Sophie, 427  
Kovalevsky, Vladimir, 427  
Krause, Ernst, 520–21, 523  
Krefft, Johann, 474
- Lamarck, Jean-Baptiste, 24, 40, 42, 43, 203  
Lamarckism, 344, 409–10  
Langton, Charles, 217  
Langton, Charlotte Wedgwood (Emma's sister), 270, 385  
Langton, Edmund, 432  
Langton, Lena Massingberd, 432  
language, origin of, 452; in *Descent of Man*, 452  
Lankester, Edwin Ray, 376, 430–31, 465, 494–95  
Lartet, Édouard, 454  
Laslett, Isaac, 244, 289  
Lassalle, Ferdinand, 405  
Latin America, U.S. interests in, 91  
Lauder, Thomas Dick, 213  
Lavater, Johann Kaspar, 61  
Lawrence, Samuel, 288  
Lawson, Nicholas, 166  
Lear, Edward, 462  
Ledger, William, 414  
Lee, James, 260  
Leifchild, John, 354  
Leighton, William Allport, 9  
Lennon, Patrick, 109  
*Letters on the Laws of Man's Nature and Development* (Martineau), 317  
Lettington, Henry, 427, 508  
Lewes, George Henry, 315, 316, 407–8, 492–93  
Lewis, John, 537  
*Life and Letters of Charles Darwin*, 480, 512  
*Life of Jesus* (Strauss), 319  
*Light of the World* (Hunt), 462  
Lincoln, Abraham, 6  
Lindley, John, 388  
Linnaeus' classification scheme, 25  
Linnean Society, 326, 331–32, 503, 530, 531; *Journal*, Darwin and Wallace double paper, 333–34, 335–36  
Litchfield, Henrietta Darwin. *See* Darwin, Henrietta (Litchfield) (daughter)  
Litchfield, Richard, 463, 472–73, 475, 488, 506, 524, 535  
*Living Cirripedia* (Darwin), 284

- Livingstone, David, 74, 347  
Lizars, John, 29  
Locke, John, 210  
London and Northwest Railway Company (LNWR), 230  
London Missionary Society, 74, 171, 185  
longitude, measurement of, 90–91  
Lovering, Joseph, 337  
*Loves of the Plants, The* (Erasmus Darwin), 25  
Lowell, J. Russell, 539  
Lubbock, John: archeology, interest in, 448; Copley Medal, nomination of Darwin, 415; as Darwin's neighbor at High Elms, 245, 303, 307, 488, 507, 508, 518–19; political pursuits, 450–51; science, interest in, 245, 307, 353, 376, 383; *Variation*, presentation copy of, 427  
Lubbock, Lady, 474  
Lubbock, Sir John (neighbor), 245  
Lucas, Samuel, 363–64  
Lucretius, 202  
Ludwig, Camilla (governess), 295, 408, 427, 479  
Lumb, Edward, 136  
Lyell, Charles, 93–96, 121, 141, 147, 190; on age of Earth, 418; Darwin, correspondence with, 431; Darwin, friendship with, 198–99, 199, 212–13, 226, 286; death of, 498; evolutionary theory, acceptance of in *Principles*, 441; evolutionary theory, contributions to, 378–79; on FitzRoy's report on Chilean earthquake, 155; Herschel's views on, 184–85; on natural selection, 304–5; on *Origin of Species*, 356; on species in Galápagos Archipelago, 162–63; transmutation, attack on, 210–11; Wallace, meeting with, 399–400; Wallace's and Darwin's papers to Linnean Society, 331–32; Wallace's essay, 314–15; Wilberforce's criticism of, 378. See also *Principles of Geology* (Lyell)  
Lyell, Henry, 244  
Lyell, Katherine, 498–99  
Lyell, Mary Horner, 212, 225, 304, 498  
“Macaw Cottage,” Gower Street, London, 230  
MacCulloch, John, 213  
Mackintosh, Sir J., 65  
Maclear, Thomas, 183  
MacLeay, William, 219, 411  
Macmillan, Alexander, 396  
*Macmillan's Magazine*, 396  
*Macrauchenia*, 118  
Maer Hall (Wedgwood family home), 57–58, 72, 238–39, 240  
*Malay Archipelago, The* (Wallace), 400, 441  
Malthus, Thomas, 219–21; *Essay on Population*, 319; impact on Darwin, 241  
Malthusian doctrine, 304, 316, 323  
*Mammalia* (Waterhouse), 246  
*Man's Place in Nature* (Huxley), 385, 448  
*Man's Place in the Universe* (Wallace), 443  
*Manual of Mineralogy* (Jameson), 35  
Māori people (New Zealand), 174–75  
mapping and surveying, 69, 100–101  
maps: *Beagle* expedition (1831–1836), 88–89; Darwin's inland excursions, 137; Galápagos Archipelago, 162; Tierra del Fuego, 132  
Marshall, Mary Brodie, 443  
Martens, Conrad, 136, 139, 141, 142, 144, 151–52, 176  
Martineau, Harriet, 20, 197, 212, 219–20, 230, 316–17, 353  
Marx, Karl, 223, 405, 490–91, 529  
*Mary Barton* (Gaskell), 318  
Massingberd, Lena (Langton), 432  
Matthew, Patrick, 402, 403  
Matthews, Richard, 126, 131–32, 171, 175  
Maurice, F. D., 463, 490  
Mauritius (Ile de France), 182  
Mayo, Herbert, 210  
McClintock, Leopold, 354  
McCormick, Robert, 34, 106–7  
McCoy, Frederick, 411  
*Mécanisme de la physiologie humaine* (Duchenne), 481  
*Megalonyx*, 117–18  
*Megatherium*, 117–18, 136, 190  
Melville, James, 164  
Mendel, Gregor, 295, 422  
Metaphysical Society, 406  
*Middlemarch* (Eliot), 408, 493  
Mill, James, 220  
Mill, John Stuart, 48, 354, 405, 415  
Miller, Hugh, 317  
*Mill on the Floss, The* (Eliot), 408  
Milne-Edwards, Henri, 352  
Milton, John, 49  
*Mind* (journal), 509–10  
mining, 149

- Miracles and Modern Spiritualism* (Wallace), 494  
missionaries, 185–86; criticism of, 171; Protestant missions, 126–27; Tahiti, 173–74; Tierra del Fuego, 75. *See also* religion  
*Missionary Travels* (Livingstone), 347  
Mitchell, Thomas Livingstone, 235  
Mivart, St. George, 469–70  
Monro, Alexander, 23  
Moore, Norman, 536  
morality, concept of, 453–54  
More, Alexander, 388  
Morley, John, 518  
Morris, Francis Orpen, 466  
Morton, Samuel George, 394  
The Mount (Darwin family home), 6, 8, 17, 69, 238; Robert Darwin's funeral, 268–69  
Mount Osorno, 146  
Moxon, Walter, 536  
Mudie, Charles Edward, 355  
Mudie's Circulating Library, 355  
Mueller, Ferdinand, 411  
Muller, Friedrich Max, 452  
Müller, Johann (Fritz), 411, 427  
Munby, Arthur J., 472, 490  
Murchison, Roderick Impey, 69, 235–36, 286  
Murray, John, 258, 346–48, 361, 411–12, 426–27, 447, 464, 497, 501  
Museo Publico de Buenos Aires, 100  
museum collections, 100  
music, origin of, 475  
Myers, Frederic, 492  
  
Nägeli, Carl Wilhelm von, 422, 423, 425  
*Narrative of a Voyage to the Pacific* (Beechey), 171  
*Narrative of the Discovery of the Fate of Sir John Franklin* (McClintock), 354  
*Natural History of Selborne* (White), 57  
*Natural History Review*, 359, 383  
natural selection: artificial selection, contrasted with, 222; Asa Gray on design, 390; danger of personification of, 341–42; and Darwin's botanical investigations, 386–88; Darwin's correspondence with Asa Gray, 330–31; Darwin's refinement of, 222–23; and Divine Creation, conflict with, 390–92; Owen's criticism of, 369; scientists freed to use term, 336–37. *See also* selection; “survival of the fittest”  
*Natural Theology* (Paley), 50–51  
nature: as governed by laws, 65; viewed as available for use, 99–100  
*Natürliche Schöpfungsgeschichte* (Haeckel), 457  
Naudin, Charles, 379, 422, 425  
*Naval Timber and Arboriculture* (Matthew), 402  
Neptunist theory, 35  
Nevill, Lady Dorothy, 388–89  
Newman, Edward, 189  
Newton, Alfred, 336  
Newton, Isaac, 539  
*New Voyage Round the World, A* (Kotzebue), 171  
New Zealand: Bay of Islands, 174–75; FitzRoy as governor, 306  
Nichol, John Pringle, 254  
Norman, Ebenezer, 250  
Norman, George Warde, 303, 414  
*North American Review*, 359  
Norton, Charles, 489  
Norton, Susan, 489  
Nott, Josiah Clark, 394  
*Nouvelles recherches sur l'hybridité dans les végétaux* (Naudin), 425  
  
O'Brien, Mary Henrietta, 196  
octopuses, 92  
Oliver, Daniel, 383  
*Omphalos* (Gosse), 317  
*On Liberty* (Mill), 354  
*On the Expression of Emotions in Man and Animals* (Darwin), 474–75; illustrations, 479–82; questionnaires and research, 475–76  
*On the Nature of Things* (Lucretius), 202  
*On the Various Contrivances by Which British and Foreign Orchids Are Fertilised by Insects* (Darwin), 386  
ontogeny, 455–57  
orchids, 386–88; *Fertilisation of Orchids* (Darwin), 411–12  
*Order of Nature, The* (Powell), 347  
*On the Origin of Species* (Darwin): analogies and illustrations, 339–40; bookshop orders and sales, 354–55; circulation and impact, 404–5; criticism of, 369–71; Darwin's personal letters concerning, 352–53; impact and response, 345–46; prediction, approaches to, 340–41; promotion of, and

- On the Origin of Species* (Darwin) (*continued*)  
presentation copies, 351–52; proofreading and editing, 348; publication of, 346–48, 349–50, 350; public response to, 364–68; reception, 351; reviews and reactions, 353–54, 355–61, 363–64; revised editions, 419, 439–40, 496; “sale dinner,” 354; satires of, 368–69; second print run, 361; title, negotiations concerning, 349; translation and distribution, 408–10; typeface and layout, 351; U.S. publication of, 380–81; Wilberforce and Huxley debate, 371–76; writing process, 334–35, 338–39
- O’rundellico (Jemmy Button), 74, 123, 124–28, 130, 131, 143–44
- Oules, Walter William, 506–7
- Owen, Caroline, 60
- Owen, Frances “Fanny,” 58–60, 72, 84, 105–6
- Owen, Richard, 200, 203, 219, 246, 256, 263, 266–67; as anonymous reviewer, 468; archetypes, 317; criticism of *Origin of Species*, 369–70; debate with Huxley, 382–83; natural selection, criticism of, 361–63, 373; review of Darwin and Wallace double paper, 335–36
- Owen, Robert, 8; New Lanark, 319
- Owen, Sarah, 58
- Owen, William Mostyn, 13, 58
- Oxford University, 462–63
- Paget, James, 427, 474
- Palaeontographical Society, 283
- Paley, William, 49, 50–51, 177, 202, 222
- pangensis, 423–25, 428, 430–31, 478
- Parker, Henry, 9
- Parker, Mary (governess), 27
- Parry, Edward, 107
- Parslow, Anne, 507
- Parslow, Eliza, 507
- Parslow, Joseph (butler), 230, 275, 293, 300, 364, 388, 389, 419, 507–8; Darwin’s burial, 538, 539
- Pasteur, Louis, 467
- Pattison, Mark, 370
- Paul et Virginie* (Bernardin de Saint-Pierre), 182
- Peacock, George, 76, 235
- pea plants, cross-fertilization, 295
- Personal Narrative* (Humboldt), 66, 82, 234
- Philip, John, 185
- Phillip, Arthur, 175
- Phillips, John, 367
- Philosophy of Living* (Mayo), 210
- photography, 479–84
- phrenology, 81
- phylogeny, 455–57
- Physical Atlas* (Johnston), 298
- “Physical Basis of Life, The” (Huxley), 468
- Phytologia* (Erasmus Darwin), 26
- Pictet, François, 352, 359
- Pictet, Jules, 409
- Pierce, Benjamin, 337
- pigeons, 289–92, 291
- Pitt, William, 73
- Planarians (flatworms), 111
- plants, study of. *See* botany
- platypus, 176
- Playfair, John, 34
- Playfair, Lyon, 506, 518
- Plinian Society, 37–39, 38
- Pliny the Elder, 37
- Pole, Elizabeth (Darwin), 27
- Pollock, George Frederick, 346–47
- Polynesian Researches* (Ellis), 171
- Pope, Alexander, 25
- Pouchet, Felix, 467
- Poulton, E. B., 317
- poverty: Malthus on causes, 220–21; rural, 4; in Victorian England, 220–21
- Powell, Baden, 347, 370–71
- Power of Movement in Plants, The* (Darwin), 525–26
- Preliminary Discourse on the Study of Natural Philosophy* (Herschel), 64–65
- Preyer, William, 510, 518
- Prichard, James Cowles, 236, 237
- Priestley, Joseph, 19
- primates, as focus of criticism of evolutionary theory, 382, 384, 384, 394–97, 395
- Primeval Man* (Campbell), 448
- “primitive” societies, 453. *See also* Indigenous people
- “principle of divergence,” 290
- Principles of Biology* (Spencer), 440
- Principles of Geology* (Lyell), 93–96, 95, 147, 155–56, 163, 418; Darwin on, 378; evolutionary theory, acceptance of, 441; on transmutation (Lamarck), 203; Wallace, influence on, 313, 319. *See also* Lyell, Charles

- Principles of Psychology* (Spencer), 316  
Protestant missions. *See* missionaries  
“protoplasm,” 468  
Pulleine, Robert, 292  
*Punch* (magazine), 368–69, 395, 396, 407, 534  
Pusey, Edward, 462
- Quail Island, 93  
*Quarterly Review*, 370–71  
Quatrefages de Breau, Jean Louis, 352, 380, 449  
Quetelet, Adolphe, 218–19  
Quoy, Jean-Rene, 178
- rabbits, variation in, 429–30  
racial hierarchies: anthropological  
    classification, 236–37; and colonization, 461; and sexual selection, 457–60; in U.S. society, 394. *See also* Indigenous people  
Rajon, Paul Adolphe, 506  
Ramsay, Andrew, 367  
Raverat, Gwen (granddaughter), 490  
Ray Society, 283  
Reade, William Winwood, 450  
Rejlander, Oscar, 479, 482–85  
*Religio Medici* (Browne), 210  
religion: Anglican Church, 11, 48, 65, 126; and classification schemes, 337–38; Creator, and evolutionary theory, Wallace’s views, 442–43; Divine Creation vs. natural selection, 390–92; *Essays and Reviews* (1860 tract), 402; evidence for existence of Creator, 50–51; and evolutionary theory, objections to, 242, 343, 358; God, evidence for existence of, 50–51; and human origins, 452–53; and natural selection, approaches to, 360–61; and origins of life, 467–69; theological framework of creation, 317; Unitarianism, 11. *See also* Darwin, Charles: religious views; missionaries  
*Religious Views of Charles Darwin, The* (Aveling), 529  
Renan, Ernest, 407  
*Reptiles* (Bell), 246  
*Researches into the Physical History of Man* (Prichard), 237  
rhea (*Rhea darwinii*), 114–15, 139–40, 203–4  
Rice, Thomas Spring, 65, 201  
Richardson, John, 107  
Richmond, George, 231  
Richmond, William Blake, 520  
Robertson, George Croom, 510  
Robinson, Henry Crabb, 252  
Rogers, William Barton, 381  
Rolleston, George, 376, 383  
Romanes, George, 488, 494, 501, 505, 516  
Rosas, Juan Manuel de, 112, 113  
Ross, John, 107  
Ross, Sir James Clark, 107, 235  
Royal College of Surgeons, London, 204  
Royal Geographical Society, 395  
Royal Society for the Prevention of Cruelty to Animals (RSPCA), 504  
Royal Society of London, 24; Copley Medal, 415–16; Royal Medal, 284, 287, 288, 440; the soiree, 419–20  
Royer, Clemence, 409–10, 428  
Ruck, Amy, 496  
Rugendas, Johann Moritz, 109  
Ruskin, John, 372, 490  
Russell, William Howard, 392
- Sabine, Edward, 107, 419  
Sachs, Julius von, 500, 525–26  
Saint-Hilaire, Geoffroy, 39, 40  
Salisbury, Lord, 462  
Salvador de Bahia, 103, 104  
Sambourne, Linley, 397, 534  
San Cristóbal, Galápagos Islands, 161, 164–66  
Sanderson, John Burdon, 496, 500–501, 506, 530  
Santiago, Galápagos Islands, 91–93, 161, 167–68  
Saunders, William Wilson, 328  
scarlet fever, 278  
science: classification schemes, 476; conclusions and laws, 69–70; field observation, 70–71; Herschel and Whewell on scientific method, 241; laboratory experiments and anti-vivisection campaigns, 504–6; laboratory vs. countryhouse investigations, 526; learned societies, influence of, 365; natural history collections, importance of, 107–8; networking and exchange of ideas, 210; popular interest in, 64; prediction, approaches to, 340–41; priority and originality, 331; scientific censorship, 416; “scientist,” coining of word, 63–64; theories as personal property, 333; ways of conceptualizing, 93–96

- Sclater, Philip, 376  
Scott, Sir Walter, 28  
Scottish enlightenment culture, 23  
Sedgwick, Adam, 65, 67–72, 68, 189–90, 260–61; Copley Medal, 415; on Lyell's concepts, 93–94; on *Origin of Species*, 353, 358, 367–68  
selection: development of concept, 290; natural vs. artificial, 439–40; sexual selection, 447, 449, 457–61. *See also* domesticated animals and plants; natural selection; sexual selection  
self-fertilization in plants, 501–2  
*Self-Help* (Smiles), 354  
Seward, Anna, 521  
sexual selection, 447, 449, 457–61  
Sharples, Ellen, 9, 10  
Shelley, Mary, 26  
shooting and hunting, 56–57  
Shrewsbury, England, 3–4, 18  
Shrewsbury School, 15–17  
Shropshire, England, 3–4  
Simpson, George, 51  
Sims, Thomas, 398  
Sismondi, Jessie, 47, 217, 224–25  
Slade, Henry, 494–95  
slave trade, 36–37, 91, 103–4, 105; *maticans* (slave hunters), 109–10, 110  
Smiles, Samuel, 354  
Smith, Adam, 23, 210  
Smith, Elder & Co. (publishing company), 497  
Smithsonian Institution, 475–76  
Smyth, William Henry, 234–35  
Society of Psychical Research, 492  
Somerville, Mary, 252  
*Soul of a Child, The* (Preyer), 510  
Sowerby, George Brettingham, 479  
speciation: definitions of “species,” 241–42; Herschel's discussion, 184–85; transmutation, 202–8; variation of traits, 421–22; Wallace's concepts, 305–6  
Spencer, Herbert, 252, 315–16, 342, 352, 403, 403–4, 423, 428, 440; origin of music, 475; “survival of the fittest,” 449  
spiritualism and séances, 492–95  
Spottiswoode, William, 537, 539  
Sprengel, Conrad, 387  
Stanhope, Lord, 352  
Startin, James, 412  
Stebbing, George, 119  
Steenstrup, Johannes, 352  
Stephen, Leslie, 489, 490, 524, 534  
Stephens, James, 52  
Stevens, Samuel, 320, 322, 328, 332  
Stevenson, Robert Louis, 29, 424  
St. Jago (Santiago), 91–93  
St. John's College, Cambridge, 64  
Stokes, Gabriel, 416  
Stokes, John Lort, 83–84, 97, 101, 306  
Stokes, Pringle, 73, 140  
Strauss, David Friedrich, 319  
*Structure and Distribution of Coral Reefs, The* (Darwin), 245, 497  
*Student's Darwin, The* (Aveling), 529  
Sulivan, Bartholomew, 96, 98, 196, 306, 417  
sundews (*Drosera*), 385–86, 500, 500–501  
surveying and mapping, 100–101; longitude, disputes over, 90–91  
“survival of the fittest,” 342, 439–40; in *The Descent of Man* (Darwin), 449  
Swainson, William, 260  
Swinhoe, Robert, 475  
symbiosis, 296  
Symonds, Hyacinth, 498  
*Système des animaux sans vertèbres* (Lamarck), 43  
*System of Logic* (Mill), 405, 415  
Taine, Hippolyte, 510  
*Tale of Two Cities, A* (Dickens), 354  
Tasmania, 177  
taxidermy, 36  
Tegetmeier, William, 292–93, 425, 427  
Telford, Thomas, 8  
*Temple of Nature, The* (Erasmus Darwin), 25  
Tenerife, Canary Islands, 67, 86, 87  
Tennyson, Alfred Lord, 6, 252, 354, 405–6, 436  
Tennyson, Emily, 436  
Thackeray, William Makepeace, 354  
Thomson, John Vaughan, 264  
Thomson, William (Lord Kelvin), 418–19  
Thoreau, Henry David, 410  
Thorley, Catherine (governess), 278, 294–95, 364  
Tierra del Fuego: exploitation of native people, 74; map, 132  
Tollet, Georgina, 348  
transcendentalism, 410  
transformism, 184, 253, 317, 410

- transitional species, 242, 342  
transmutationism, 40, 42, 202–8; Erasmus Darwin, 43–44; religious beliefs conflicting with science, 253–54; *Vestiges of the Natural History of Creation* (Chambers), 252–56; Wallace unready to use word, 305  
*Travels on the Amazon and Rio Negro* (Wallace), 321  
“tree of life” metaphor, 343–44  
Trent affair (1861), 393  
Trent and Mersey Canal, 8  
Trevor, Frances Rice, 114  
Trimen, Henry, 389  
Trimen, Roland, 389  
Trinity College, Cambridge, 64, 65  
Tristram, Henry, 336  
Trollope, Anthony, 363  
Turnbull, George Henry, 389, 414  
Turner, J. M. W., 253  
*Two Ways of Life, The* (Rejlander), 483, 484  
Tylor, Edward, 426, 449, 452  
Tyndall, John, 431, 443  
*Types of Mankind* (Nott & Gliddon), 394  
uniformitarianism, 95  
Unitarianism, 5, 11  
United States: Asa Gray as gatekeeper for Darwin, 380–81; Civil War and abolitionism, 392–93; Latin America, interests in, 91; racial hierarchies, 394; transcendentalism and reception of *Origin*, 410  
University College London, 48  
USS *Potomac*, 91  
Valparaiso, Chile, 146  
variation: among domesticated species, 421–22; and Darwin’s study of barnacles, 282–83; and selection, 431–32  
*Variation of Animals and Plants Under Domestication, The* (Darwin), 426–28, 431–32, 450; revised editions, 496  
*Variation of Species* (Wollaston), 307  
*Versuche und Beobachtungen* (Gärtner), 425  
*Vestiges of the Natural History of Creation* (Chambers), 252–56, 316; Darwin’s departure from, 344–45; reviews and criticism, 260–61; revised editions, 364, 403; Thomas Huxley’s review of, 285; Wallace, influence on, 319–20  
Victoria (English queen), 195, 252–53, 411  
Victorian-era England: cultural climate for reception of evolutionary theory, 315–17; illness in, 211; liberal and scientific ideas, 315. *See also* England  
*Vie de Jésus* (Renan), 407  
*Virginians, The* (Thackeray), 354  
vivisection, 504–6  
Vogt, Carl, 409, 449  
*Volcanic Islands* (Darwin), 260  
Von Ambras family, 481  
von Baer, Karl, 357  
von Mengden, Nicolai, 513  
Von Siebold, Carl, 352  
*Voyage of the Beagle* (Darwin), 201  
*Voyage up the Amazon* (Edwards), 320  
Vulcanist theory, 35  
Wales, geology of, 68–72  
Walford, Edward, 434  
Wallace, Alfred Russel, 294, 305–6, 308; on age of Earth, 419; background of, 317–20, 318; collecting expedition, Brazil, 320–21; collecting expedition, Malaysia and Indonesia, 321–23; collections, 400–401; correspondence concerning *Origin of Species*, 353; Darwin, break with over theory, 441–43; Darwin, compromise concerning joint paper, 325–28, 327; Darwin, friendship with, 440–41; Darwin and Wallace double paper, 333–34, 335–36; *Darwinism*, 486; Darwin’s concepts, symmetry with, 323–24; Darwin’s philanthropy toward, 527–28; on *The Descent of Man*, 466–67; essay, 323–24; evolution by natural selection, 311–13; human origins, interest in, 322–23; Indonesia and Malaysia travels (1858), 311; Lyell and Huxley, meetings with, 399–400; Malaysia collecting trip, return from, 398–99; on natural selection, 441–42; on sexual selection, 458–59; spiritualism, 442–43, 492, 493, 494–95; Wallace’s and Darwin’s papers to Linnean Society, 331–32  
Wallace, Herbert, 320–21, 443  
Wallace, John, 318  
Wallace, William, 318  
Wallich, George, 479  
*Water-Babies, The* (Kingsley), 359–60, 396  
water cure, 272–75, 274  
Waterhouse, George, 200, 246, 285

- Waterton, Charles, 36  
Watson, Hewett Cottrell, 285  
Watt, James, 26  
Way, Albert, 52, 53  
*Way of All Flesh, The* (Butler), 16  
Wedgwood, Bessy (Emma's mother), 243  
Wedgwood, Caroline Darwin. *See* Darwin, Caroline (Wedgwood) (sister)  
Wedgwood, Charlotte (Langton) (Emma's sister), 106, 216, 217, 231, 385  
Wedgwood, Effie (niece), 475, 532  
Wedgwood, Elizabeth (Emma's sister), 216, 231, 238, 270, 324, 385, 527  
Wedgwood, Emma (cousin), 13, 47, 216–17; Darwin's courtship of, 223–28. *See also* Darwin, Emma Wedgwood (spouse)  
Wedgwood, Fanny Mackintosh (Hensleigh's spouse), 10, 223, 231, 270, 273, 280, 419, 532, 537  
Wedgwood, Frances "Fanny" (Emma's sister), 47, 216  
Wedgwood, Harry (cousin), 216  
Wedgwood, Hensleigh (cousin): Anne Darwin's funeral, 280; Darwin, friendship with, 482; as Emma Darwin's brother, 216, 231, 270; in London, 197, 211, 419; marriage of, 115; séance attendance, 494; social visits, 273; spiritualism, 492; support for Darwin's engagement, 223  
Wedgwood, Hope (niece), 471  
Wedgwood, John Allen (Emma's brother), 45, 224, 229  
Wedgwood, Josiah (Emma's brother), 217, 527  
Wedgwood, Josiah (grandfather), 4, 14, 26; abolitionism, 103  
Wedgwood, Josiah (great-grandfather), 6  
Wedgwood, Josiah (uncle), 4, 8, 18, 47, 57–58, 72, 200, 216, 231, 244; on Charles' *Beagle* expedition invitation, 77–78  
Wedgwood, Julia (Snow) (niece), 406, 453, 465, 492, 514, 532, 539  
Wedgwood, Kitty (aunt), 14  
Wedgwood, Robert (uncle), 45  
Wedgwood, Sarah (Emma's aunt), 224, 270, 300  
Wedgwood, Sarah Allen (grandmother), 14  
Wedgwood, Susanna. *See* Darwin, Susanna Wedgwood  
Wedgwood, Tom, 14  
Wedgwood family, 4, 6  
Weir, John Jenner, 427, 440–41  
Weismann, August, 422  
Wells, William, 402–3  
Went, Frits, 526  
Werner, Abraham Gottlob, 34–35  
Wernerian Natural History Society, 39, 44  
Westminster Abbey, 537–39, 538  
*Westminster Review*, 315, 366–67  
*What Will He Do with It?* (Bulwer-Lytton), 264  
Whewell, William, 62, 63, 65, 261, 349, 359; on scientific methods, 241; uniformitarianism, 95  
Whig party, 5, 46  
Whitby, Teresa, 294  
White, Gilbert, 12, 45, 57  
Whitley, Charles, 146, 213  
Wickham, John, 96, 98, 104, 151, 154, 306  
Wilberforce, Samuel, 370–71, 371; debate with Huxley, 371–76; *Origin of Species* review, 377–78; Zoological Society vice presidency, 377  
William IV (English king), 124, 195  
Williams, Charles, 493, 494  
Williams, Henry, 174  
Williams, Margaret Vaughan (niece), 475  
Williams, William, 175  
Withering, William, 26  
Wollaston, Thomas Vernon, 285, 301, 307  
Woodhouse (Owen family estate), 58, 59–60  
Woodward, Benjamin, 372  
Woodward, Samuel, 354  
Woollya Sound (Bahia Wulaia), 131, 143  
Woolner, Thomas, 434–35, 450  
Working Men's College, London, 463  
Wright, Chauncey, 470, 488  
X Club, 416–17  
Yaghan (Yámana) people, 74  
Yarrell, William, 219  
Yokushlu (Fuegia Basket), 105, 123, 124–27, 130  
Zacharias, Otto, 188–89, 518  
Zoological Society, 395  
*The Zoology of the Voyage of H.M.S. Beagle* (Darwin, ed.), 201, 245–46, 260, 479  
*Zoonomia* (Erasmus Darwin), 26, 43, 206–7, 522