

Young Charles
Darwin AND THE
VOYAGE OF THE *BEAGLE*

To Ernie

—R. A.



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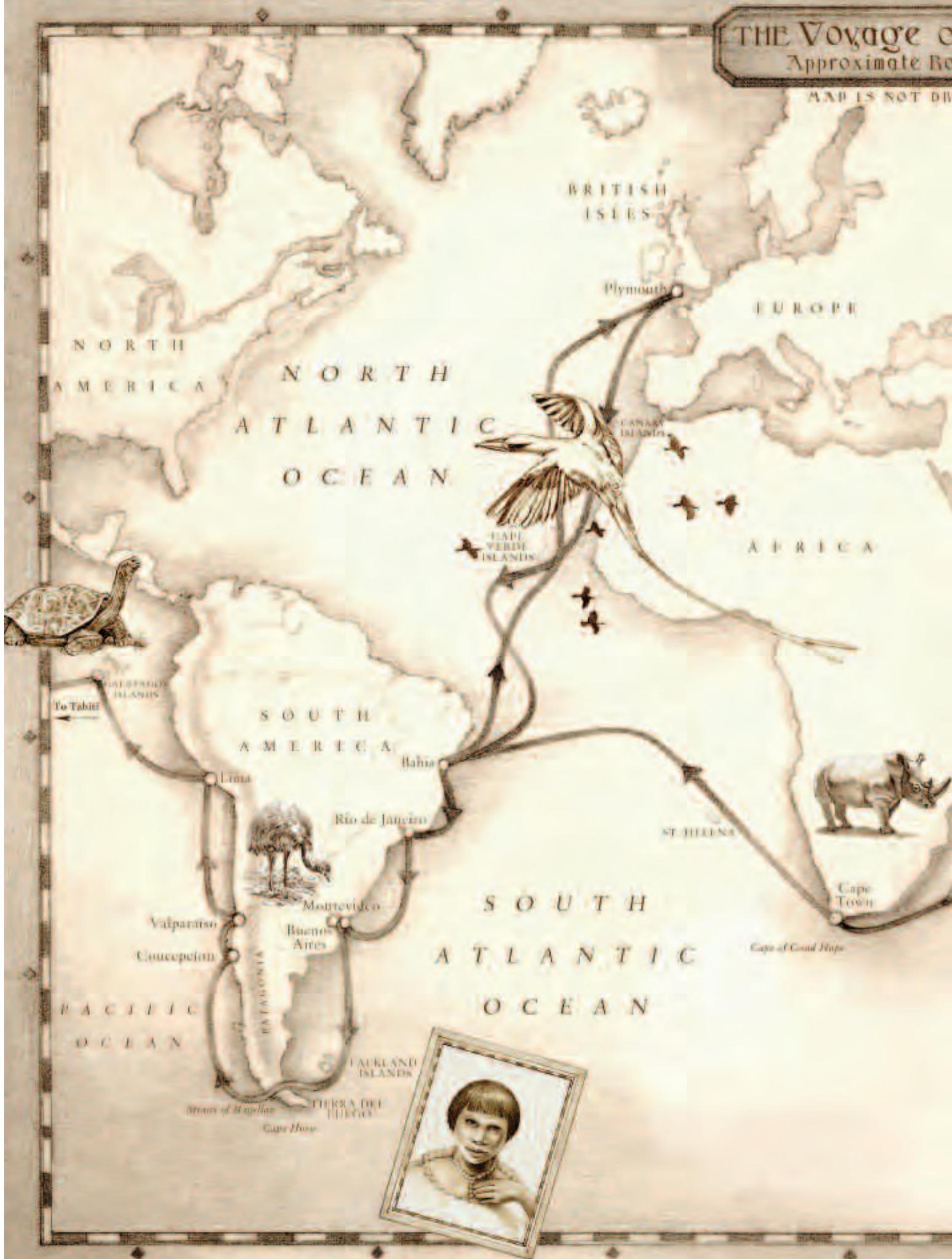


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INTRODUCTION

The Chance of a Lifetime

A trip around the world! Twenty-three-year-old Charles Darwin couldn't believe his luck. He eagerly reread the letter from his friend and teacher, John Stevens Henslow:

August 24, 1831

I shall hope to see you shortly fully expecting that you will eagerly catch at the offer which is likely to be made you of a trip to Terra del Fuego & home by the East Indies.... The Voyage is to last 2 yrs & if you take plenty of Books with you, anything you please may be done.... In short I suppose there never was a finer chance for a man of zeal & spirit.

His excitement growing, Darwin read on. A ship captain named Robert FitzRoy was seeking a companion on a scientific voyage from Britain to the coast of

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South America and across the Pacific Ocean to Australia and southeast Asia. The captain wanted a traveler who knew a lot about plants and animals and other aspects of natural history. He should be young. (FitzRoy himself was only twenty-six.) He should be a gentleman. And he should be ready for adventure!

“You are the very man they are looking for,” Henslow insisted. Charles Darwin knew his friend was right. Darwin was a natural-born scientist, enthralled by the world of plants and animals. Even as a boy in the English countryside, he had eagerly collected flowers, butterflies, rocks, and birds. In college, where he was trained by some of the best biologists, botanists, and geologists in the country, he had searched for sponges and corals on the coast and gained a passion for collecting beetles.

Since graduating from Cambridge University the previous spring, Darwin had been searching for adventure. His father, Dr. Robert Darwin, had already decided that his son would enter the ministry and become a clergyman in a country church. But before he settled down, Charles longed to see the world. He planned to take a sea trip to the Canary Islands, off the coast of Africa, where he could explore tropical rain forests and climb the sides of an ancient volcano. But

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the arrangements fell through, and Charles had to make do instead with a walking tour of Wales to collect rock samples and prehistoric bones. When he returned on August 29, 1831, he found Henslow's letter waiting for him.

Charles's response was immediate. Of course he would go!

Not so fast, his father warned. The voyage would be long and dangerous. It would keep Charles from starting his career and making a living as a clergyman. It required an experienced naturalist, which Charles was not. And besides, his father pointed out, other more-qualified men had already been offered the position and turned it down. Clearly *they* knew that this so-called trip of a lifetime was nothing but a "wild scheme!"

Disheartened, Darwin wrote Henslow a sad refusal. "As far as my own mind is concerned, I should...*certainly* most gladly have accepted the opportunity, which you kindly have offered me. But my father, although he does not decidedly refuse me, gives such strong advice against going, that I should not be comfortable if I did not follow it."

Then his father threw him a lifeline.

"If you can find any man of common sense who

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advises you to go,” Dr. Darwin told his son, “I will give my consent.”

Charles knew just the man—his Uncle Jos, a manufacturer who ran the famous family pottery business. Josiah Wedgwood was greatly respected for his kindness and common sense. If his father listened to anyone, it would be Josiah.

Impulsively, Charles jumped on a horse and rode the twenty miles to Uncle Jos’s estate. He outlined the plan to his uncle and his Wedgwood cousins. They thought it was a marvelous venture, not to be missed on any account. Josiah scribbled a letter to the doctor, dismissing Dr. Darwin’s objections one by one. Most important of all was the flourish that ended the note. The voyage, Josiah wrote, would give his nephew “such an opportunity of seeing men and things as happens to few.”

To Charles’s intense joy, his father gave in. Charles Darwin would have his grand voyage!

The next few months were a blur of activity as Charles prepared for the voyage. There were supplies to buy, shipmates to meet, farewells to make to family and friends. Above all, he had to prepare himself mentally for the challenges to come. He was determined to make every moment count. “If I have not energy

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enough to make myself steadily industrious during the voyage,” he wrote in his journal, “how great & uncommon an opportunity for improving myself shall I throw away. May this never for one moment escape my mind.”

Finally, on December 27, 1831, HMS *Beagle* sailed out of Plymouth Harbor into the great unknown. What happened during the next five years has passed into legend. The observations that Charles Darwin made on the *Beagle* led to his development of the theory of evolution and to a new era in science. Years later, Darwin himself admitted,

The Voyage of the Beagle has been by far the most important event in my life and has determined my whole career. . . . I have always felt that I owe to the voyage the first real training or education of my mind; I was led to attend closely to several branches of natural history, and thus my powers of observation were improved. . . .

With this one spectacular voyage, Charles Darwin would transform the study of biology forever.

CHAPTER ONE

Songbirds and Sea Mats

No one who knew Charles Darwin as a boy ever thought he would grow up to be famous. They didn't even think he would be successful. "You care for nothing but shooting, dogs, and rat-catching," his father scolded him when he was about fifteen, "and you will be a disgrace to yourself and your family."

The Darwin family name was not to be taken lightly. Charles had quite a heritage to live up to. His two famous grandfathers had made the family both wealthy and respectable. His mother's father, the elder Josiah Wedgwood, had invented a new method for making pottery and had built a great and prosperous factory. His father's father, Erasmus Darwin, had been a doctor, an inventor, and a poet. In the late 1700s, when England was in the throes of a scientific and industrial revolution, both Wedgwood and the elder Darwin

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were on the cutting edge of change. Along with James Watt, the inventor of the steam engine, and Joseph Priestley, the discoverer of oxygen, they belonged to Birmingham's "Lunar Society." The members, known as the "Lunatics," met once a month to discuss innovations in science and technology.

Erasmus even wrote a vast 1,400-page encyclopedia of information on medicine and animal life, called *Zoonomia*. Long before his grandson made a study of changes in nature, Erasmus Darwin used the word "evolution" in his writings.

When Erasmus's son Robert and Wedgwood's daughter Susannah married in April 1796, they settled down on a comfortable estate in Shrewsbury called The Mount. There they raised six children, four girls and two boys. The second son, Charles Robert Darwin, was born on February 12, 1809.

From the start, Charles tried to be the center of attention. A middle child who was often lost in the hubbub of a great house, he wanted above all to be noticed and admired. He collected birds' nests, shells, pebbles, and minerals, in part because he could show them off to others. At home, he stole peaches and plums so he could pretend to find them the next day. At school, he invented stories about birds and flowers, and boasted of being able to turn crocuses any color of

Songbirds and Sea Mats

the rainbow. “Inventing deliberate falsehoods became a regular method of seeking the spotlight,” he remembered years later.

Suddenly, when Charles was eight, his mother died of cancer. He and his brother Erasmus (Ras) and younger sister Catherine were left in the care of their older sisters Marianne, Caroline, and Susan. Their father, Dr. Darwin, was depressed after the death of his wife. Though he was kind and considerate to his patients, he became ever stricter at home. At six-foot-two and more than three hundred pounds, Dr. Darwin inspired respect, awe, and perhaps a bit of fear in his younger son. Charles often fell short of pleasing his father. It didn't help that the boy was not much of a student. At the Shrewsbury School, Charles suffered under the burden of Greek and Latin, the traditional curriculum for an English gentleman. The long-dead languages bored him to death.

Charles escaped outdoors. He grew plants in his mother's greenhouse and gathered shells and strange insects. Strolling along the beach, he observed the swooping flight of gulls and cormorants. “I took much pleasure in watching the habits of birds, and even made notes on the subject. In my simplicity, I remember wondering why every gentleman did not become an ornithologist [bird scientist].” With Ras he rigged up a

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chemistry lab in the garden shed. Somehow “Gas” Darwin, as Charles’s friends now called him, managed not to blow himself up.

He blasted away at other creatures, though. Charles received his first gun at age fifteen and was soon taking shots at snipe, quail, and partridge. From the start he enjoyed hunting, one of the favorite hobbies of the English country gentleman. “I do not believe that anyone could have shown more zeal for the most holy cause than I did for shooting birds,” he remarked.

He would ride his horse over to the Wedgwood estate at Maer for shooting parties. Generous, easy-going Uncle Josiah and his seven children created a sense of welcome at Maer that was very different from the strict atmosphere at Charles’s home. The youngest child, Emma, was just a year younger than Charles and already well educated abroad and in London. Charming and messy, she was known affectionately as “Little Miss Slip-Slop” for her disorganized ways.

Charles’s performance at school slipped even further, and his father was not amused. Too much fun was making Charles a dull boy, he thought. He needed to be pulled back from the brink before he became a “disgrace” to his family.

The doctor thought he had the perfect solution. It had already been decided that twenty-one-year-old Ras

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would attend Edinburgh University in Scotland to study medicine. Edinburgh was the best medical school in Britain—the first Erasmus Darwin and Robert himself had also studied there. Why shouldn't sixteen-year-old Charles go with his brother to Scotland and prepare to enter the family profession?

Charles was willing. What could be better than being on his own in a new, unexplored town? In the fall of 1825, he and Ras rented a room and settled in. Determined to make a go of it, Charles dove into his books. But he soon realized that everything about the field of medicine repulsed him.

He dreaded the anatomy lectures. His professor often showed up straight from the operating room, covered with blood and filth. The dissecting theaters themselves were beyond disgusting, where limbs and organs from the corpses were piled on tables. Charles was so horrified that he never learned correct dissection techniques.

And he found the operations on live human patients to be unbearable. In those days, before anesthetics or effective pain-killing medications, patients were strapped down and operated on while they were still awake. Doctors cut quickly to reduce the stress, but patients often died on the operating table anyway. Charles, who hated the sight of blood, was horrified by

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what he saw and could never get used to the agony of the patients. The last straw came when he had to watch an operation on a screaming child. Charles bolted out of the operating room and never returned.

Dr. Darwin was dismayed by his son's lack of ambition. "If you do not discontinue your present indulgent way, your course of study will be utterly useless," he warned sternly. But Charles couldn't summon any enthusiasm for his classes. After one year in Edinburgh, he wanted nothing to do with medicine.

Nevertheless, he returned to the university for a second year. By now he had given up almost all pretense of studying. There was plenty to occupy his time and mind, however. Taxidermy, for instance, fascinated him. As an enthusiastic hunter, Charles thought it would be valuable to learn to skin and stuff his kill. (In just one week at Maer over the summer, he had shot fifty-five partridges, three hares, and a rabbit.) He found an able taxidermist in a freed black slave named John Edmonstone, who mixed stories of his life in South America with his taxidermy lessons. The tales gave Darwin a new window into the horrors of slavery.

He also kept up his interest in natural history. His new mentor, Professor Robert Grant, was an expert on simple, tiny marine animals. With Grant, Darwin spent

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hours standing in frigid tidal pools scooping up primitive organisms like sponges, sea mats, and sea pens. In the spring, Darwin proudly delivered his first scientific talk at Edinburgh's Plinian Society. The waving fibers on sea mat larvae were actually microscopic hairs called cilia, he announced. They showed that the larvae could swim, which helped prove that the sedentary sea mats were indeed animals and not plants. Darwin was learning that all generalizations about animals had to be backed up by detailed, time-consuming observations of their physical structure and habits.

Another high point of his second year in Edinburgh was studying geology with Professor Robert Jameson. Geology was a hot topic in the 1820s. All over the country, geologists were discovering fossils of long-extinct plants and creatures in layers of rock. They were questioning older theories about the formation of the earth and the extinction of species.

Both Jameson and Grant were well-respected members of the scientific community. Even though he was only nineteen years old, Darwin was being taught by some of the top scientists in the world.

Rocks, sponges, sea mats—what did these have to do with medical school? Nothing, and Darwin knew it. If he wasn't going to become a doctor, he would have to

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find another way to earn a living. As he headed back home in the spring of 1827, one question remained on his mind.

What would he do with his life?