

DARWIN



SELECTED AND EDITED BY
PHILIP APPLEMAN

A NORTON CRITICAL EDITION
THIRD EDITION

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DARWIN



TEXTS
COMMENTARY
Third Edition

Selected and Edited by
PHILIP APPLEMAN
INDIANA UNIVERSITY

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Preface

The Norton Critical Edition of *Darwin*, in its two previous editions and thirty-five printings, has helped to inform a multitude of readers about the importance, and enduring relevance, of Darwin and evolution. It is hoped that it will continue to do so in this third edition, the first one of the twenty-first century.

There is a great deal of new material in this edition, indicating the voluminous scientific research and scholarly analysis that is being done in every field of evolutionary study. The book now has nine parts, beginning with an expanded and updated Introduction as Part I; more biographical detail about Darwin in Part II, "Darwin's Life"; and more selections from his scientific predecessors in Part III, "Scientific Thought: Just before Darwin"; as well as more of Darwin's own works, and longer excerpts from them, in Part IV.

Part V, "Darwin's Influence on Science," includes selections both from Darwin's contemporary supporters and from his contemporary critics. Updated and more detailed, this part also explains why the scientific method is so persuasive and how it confirms the validity and significance of evolution. In addition, Part V shows how much the knowledge of our primate heritage has grown in recent years, how biological classification and the pace of evolution are being re-evaluated, and how natural selection itself can be convincingly witnessed in real time.

Part VI, "Darwinian Patterns in Social Thought," explores the implications of biological cooperation as well as biological competition; scrutinizes the recent studies of genetic influences on human behavior; and examines the implications of evolution as regards gender, psychology, language, and medicine.

Part VII, "Darwinian Influences in Philosophy and Ethics," is more current and more diverse and is now set apart from theology (which is the subject of Part VIII). Darwinian epistemology and the origins and premises of ethical thinking are shown to be the absorbing interests of contemporary scholars.

Part VIII, "Evolutionary Theory and Religious Theory," has been greatly expanded, partly to illustrate the current broad approval of evolution by mainstream religions; partly to show the varieties of antievolutionary, creationist opinions; and partly to give both the scientific and the religious critiques of creationism.

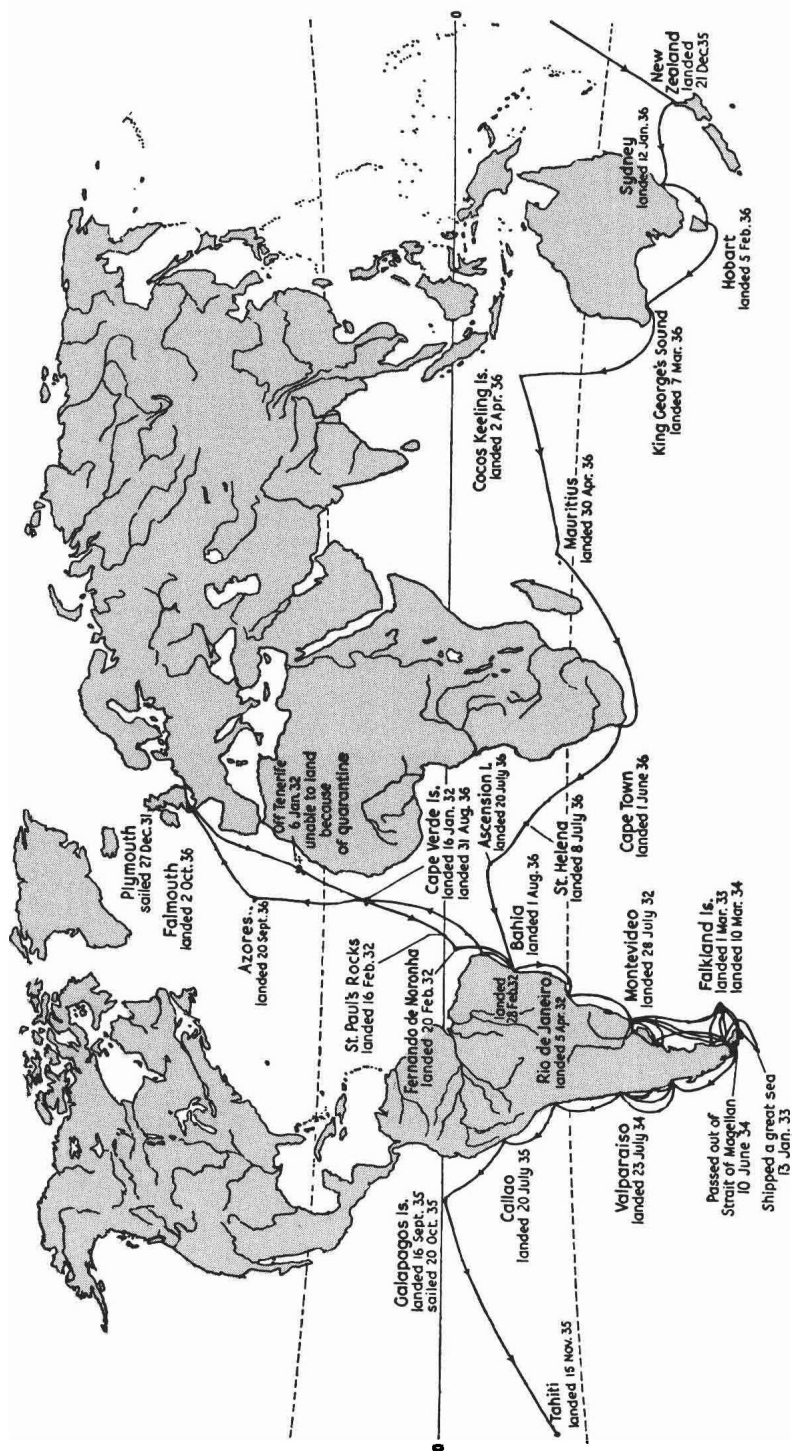
Part IX, "Darwin and Literature," explores more thoroughly Darwin's own literary sensibility; the several kinds of interplay between Darwin as scientist and Darwin as writer; and his literary influence on other writers, from his own time until the present.

I should add that, although this volume is substantially longer than the previous edition, it is not exhaustive. In the preface to another anthology, the Norton Critical Edition of Malthus's *Essay on the Principle of Population*, I commented editorially on the difficulty of attempting to represent the rich productivity of the scientific, scholarly, and literary world within the limited scope of a single book. That difficulty remains. Although I have tried here to choose central and succinct passages, they are necessarily excerpts from longer, more detailed studies; and they were selected from a vast array of other important books and articles that might also have been used. I regret that for want of space, the work of many significant scientists, scholars, and writers could not be included. Some of them are listed in the Selected Readings (p. 683), although that section also had to be limited in scope.

The editor of any wide-ranging anthology is certain to need a lot of help. I am pleased to be able to acknowledge the many scholars and friends who have advised me so carefully and so generously. My sincere thanks to David Baker, Charles Blinderman, William Burgan, Peter Busher, Fran Castan, Bette Chambers, Frederick B. Churchill, Kay Dinsmoor, Edd Doerr, Taner Edis, Dennis Flanagan, Antony Flew, Stephen Jay Gould, Loren Graham, Quentin Hope, Karl Jaeger, James R. Kincaid, Noretta Koertge, Richard A. Levine, Laurence Lockridge, Molleen Matsumura, Betty McCollister, Thomas McIver, Craig Nelson, Kevin Padian, Warren Schmaus, Eugenie C. Scott, George Stade, Claire Szego, Charles E. Taylor, John Van Sickle, and John Woodcock. Special thanks to my previous W. W. Norton editor, James L. Mairs; to my current editor, Carol Bemis; and to the editorial assistants, Ben Reynolds, Christa Grenawalt, and Brian Baker; as well as to William A. Madden, Michael Wolff, Donald Gray, and George Levine, good friends and my co-founders and editorial colleagues throughout the challenging and rewarding early years of the interdisciplinary journal, *Victorian Studies*.

I also want to reaffirm here my profound gratitude and love to my lifelong partner, Margie — playwright and poet, who was for this book, as for all my others, the indispensable and tireless in-house editor.

Philip Appleman



The Voyage of the *Beagle* 1831-1836

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PART I

INTRODUCTION



There is grandeur in this view of life, with its several powers, having been originally breathed into a few forms or into one; and that, whilst this planet has gone cycling on according to the fixed law of gravity, from so simple a beginning endless forms most beautiful and most wonderful have been, and are being, evolved.

—Charles Darwin, 1859

THE SKELETONS OF DREAMS†

He found giants
in the earth: mastodon,
Mylodon, thigh bones
like tree trunks, Megatherium, skulls
big as boulders—once,
in this savage country, treetops
trembled at their passing.
But their passing was silent as snails,
silent as rabbits. Nothing at all recorded
the day when the last of them came
crashing through creepers and ferns,
shaking the earth a final time,
leaving behind them crickets,
monkeys, and mice.
For think: at last it is nothing
to be a giant—the dream
of an ending haunts tortoise and Toxodon,
troubles the sleep of the woodchuck
and the bear.

Back home in his English garden,
Darwin paused in his pacing,
writing it down in italics
in the book at the back of his mind:
*When a species has vanished
from the face of the earth,
the same form never reappears . . .*

So after our millions of years
of inventing a thumb and a cortex,
and after the long pain
of writing our clumsy epic,
we know we are mortal as mammoths,
we know the last lines of our poem.
And somewhere in curving space
beyond our constellations,
nebulae burn in their universal law:
nothing out there ever knew
that on one sky-blue planet
we dreamed that terrible dream.
Blazing along through black nothing
to nowhere at all, mastodons of heaven,
the stars do not need our small ruin.

—Philip Appleman, 1984

† From *New and Selected Poems, 1956–1996*, by Philip Appleman. Reprinted by permission of The University of Arkansas Press. Copyright © 1996 by Philip Appleman.

PHILIP APPLEMAN

Darwin: On Changing the Mind (2000)†

1

Born on February 12, 1809, Charles Darwin grew up in the comfort and security of the well-to-do Darwin and Wedgwood families. His mother was a Wedgwood, and he himself was to marry another, his cousin Emma. The son and grandson of prosperous physicians, he tried medical training himself but found the studies dull, and surgery (before anesthesia) too ghastly even to watch. So he followed the advice of his formidable father (six feet, 2 inches; 336 pounds; domineering in temperament) and went up to Cambridge to study for the ministry.

Darwin, however, was less interested in theology than in entomology; since childhood he had taken great pleasure in the popular Victorian hobby of collecting and studying beetles. To obtain his degree, he somewhat impatiently went through the requisite three years of courses in classics, mathematics, and philosophy. At the same time, though, he was also able to study not only insects but the natural sciences in general, with learned professors like the botanist John Stevens Henslow, the geologist Adam Sedgwick, and the philosopher of science William Whewell. He also read John Herschel's impressive new book on scientific method and William Paley's arguments for design in nature. After a substantial education in a broad spectrum of scientific work, Darwin took his B.A. at Cambridge in 1831.

Then a remarkable turn of events saved him from a country parsonage. Professor Henslow unexpectedly arranged for Darwin the invitation to join H.M.S. *Beagle* during a long voyage of exploration. The British government—in the wake of the Napoleonic wars and on the brink of a great commercial expansion—had undertaken the ambitious task of mapping the ports and coastlines of the world. British naval ships were being sent to remote destinations, many of them carrying along naturalists, who were expected to make their collections and observations while the mapping expeditions were carried out. Justifying his nomination of so young a man for such a position, Henslow wrote to Darwin that although he was not “a *finished* naturalist,” he was already “amply qualified for collecting, observing, and noting anything worthy to be noted in Natural History.” So on December 27, 1831, at the age of twenty-two, Darwin left England for what became a five-year journey around the globe; it turned out to be not only a crucial experience for Darwin himself but a passage of consequence for the whole world.

During the voyage of the *Beagle*, Darwin resolutely transformed himself into a “finished naturalist”—an industrious collector, a keen observer, a canny theorist. And he took up the momentous problem that he would grapple with for more than twenty years: what he called the “mystery of

† First published in this Norton Critical Edition.

mysteries"—the origin of species. In the years after his extraordinary journey on the *Beagle*, however, Darwin's adventures were mostly intellectual, his life deliberately domestic, primarily because he was chronically ill for much of his later life with a mysterious, undiagnosable ailment. He suffered from heart palpitations and an almost daily debilitating nausea, the cause of which is still not certain. So he lived quietly in his country house¹ with his beloved and devoted wife, Emma, who managed their large household of children, servants, and pets. Emma attended her husband assiduously through his chronic sickness, while caring for their ten children; and she sustained him in his work, asking him challenging questions, writing countless letters at his dictation, and helping correct the proofs of his weighty books.

Despite his continuing ill health, Darwin worked hard almost every day, and his industrious life was studded with solid contributions to science: *The Voyage of the Beagle* (1845), *The Origin of Species* (1859), *The Variation of Animals and Plants under Domestication* (1868), *The Descent of Man* (1871), *The Expression of the Emotions in Man and Animals* (1872), *The Formation of Vegetable Mould through the Action of Earthworms* (1881), and so on—as well as an autobiography and a voluminous worldwide correspondence on scientific matters. (See *Selected Readings*, p. 683.)

There was something paradoxical but eminently admirable about both Darwin's character and his devotion to his task. Intellectually he was a revolutionary, but the gentlest of revolutionaries. He lived the life of a respectable and conventional country gentleman, but he gradually developed some very unconventional ideas and, as he wrote in his autobiography, ultimately rejected the "brutal" religion that threatened to condemn his freethinking father, brother, and best friends to everlasting punishment ("a damnable doctrine"). He became, in T. H. Huxley's new terminology, an agnostic; and like many another Victorian agnostic, he exemplified in his life and work a high-minded benevolence, kindness, and generosity not only to other people but to all creatures. So he continued to write about the "grandeur" of "beautiful" and "wonderful" forms of life, and of humanity's high "destiny" in the future.

When he died in 1882 at age seventy-three, the man whose sacrilegious ideas had once been publicly assailed by a multitude of critics was accorded the rare national honor of burial in Westminster Abbey, a few feet from the grave of the other eminence among British scientists, Isaac Newton.

2

It is not easy, a century and a half later, to enter fully into the mind-set of the early Victorians, in which both religion and science presupposed the glory of God to be manifested in nature. Nor is it easy to comprehend the intensity of their commitment to the fixity of species, or to imagine the intellectual and emotional upheaval that Darwin's work would cause. And

1. Down House, about fifteen miles southeast of London, near the village of Downe, in Kent; now a Darwin museum open to the public.

it is difficult to give sufficient credit to Darwin's boldness and originality, unless it is kept in mind that he had boarded H.M.S. *Beagle* young, as yet unseasoned in science, and still a believer in Genesis.

We need to picture him then, just out of Cambridge, carrying in his small shipboard library the first volume of Charles Lyell's revisionary new work, the *Principles of Geology* (see p. 49), but warned by his respected professor Henslow against its novel uniformitarian ideas. He also carried in his mental baggage the pious lessons of William Paley's *Natural Theology* (see p. 41), which he had studied at Cambridge so carefully that he later wrote in his autobiography, "I could almost formerly have said it by heart." And it was Paley more than anyone else who had already persuaded a generation of readers that in the Deity's neatly constructed universe, "the marks of [God's] *design* are too strong to be gotten over."

Darwin also kept in mind the ideas and opinions of the Cambridge professor William Whewell—"next to Sir J. Mackintosh," Darwin wrote, "the best converser on grave subjects to whom I ever listened." By an ironic trick of history, it was during the five years of Darwin's *Beagle* voyage that the British citadel of science, the Royal Society, was administering the publication of the Bridgewater Treatises, a series of books by notable scientists and moralists, including Whewell, who were commissioned specifically to demonstrate "the power, wisdom, and goodness of God as manifested in the Creation." So, while Darwin was in South America painstakingly examining plants and animals—assembling the physical evidence that would one day support his radical new theory—Whewell, in his Cambridge study, was writing for his treatise:

If there be, in the administration of the universe, intelligence and benevolence, superintendence and foresight, grounds for love and hope, such qualities may be expected to appear in the . . . fundamental regulations by which the course of nature is . . . made to be what it is (see p. 58).

It is an awesome distance from that kind of thinking to Darwin's in *The Origin of Species*, which, a quarter of a century later, would turn Whewell's divinely planned, benevolent world topsy-turvy:

Thus, from the war of nature, from famine and death, the most exalted object which we are capable of conceiving, namely, the production of the higher animals, directly follows (see p. 174).

Charles Darwin—cautious, skeptical, compulsively industrious, distrustful of his own talents, and never daring to suspect himself of the genius we now acknowledge—did not make that awesome voyage in a day.

As a modest young scientist, Darwin was understandably reluctant to reveal his revolutionary theory of the transmutation of species and thus set himself single-handedly against the massive forces of conventional scientific and religious opinion, both of which were committed to the ancient and sanctified belief in the fixity of species. He knew about Lamarck's bitter experience: Lamarck had tried to challenge that conventional opinion with an unconvincing evolutionary hypothesis and had been systematically attacked and ridiculed by virtually the entire scientific es-