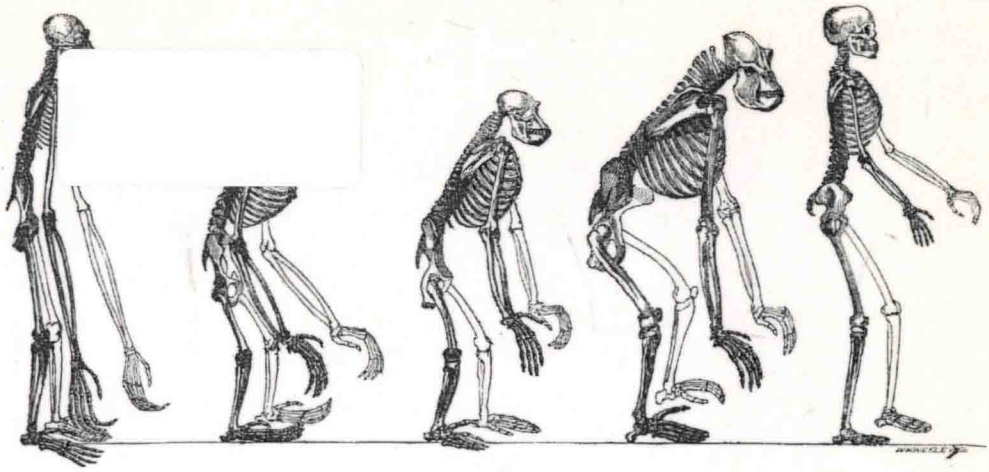

GIBBON. ORANG. *Skeletons of the* CHIMPANZEE. GORILLA. MAN.

JONATHAN CONLIN

EVOLUTION AND THE VICTORIANS

SCIENCE, CULTURE AND POLITICS IN DARWIN'S BRITAIN

BLOOMSBURY

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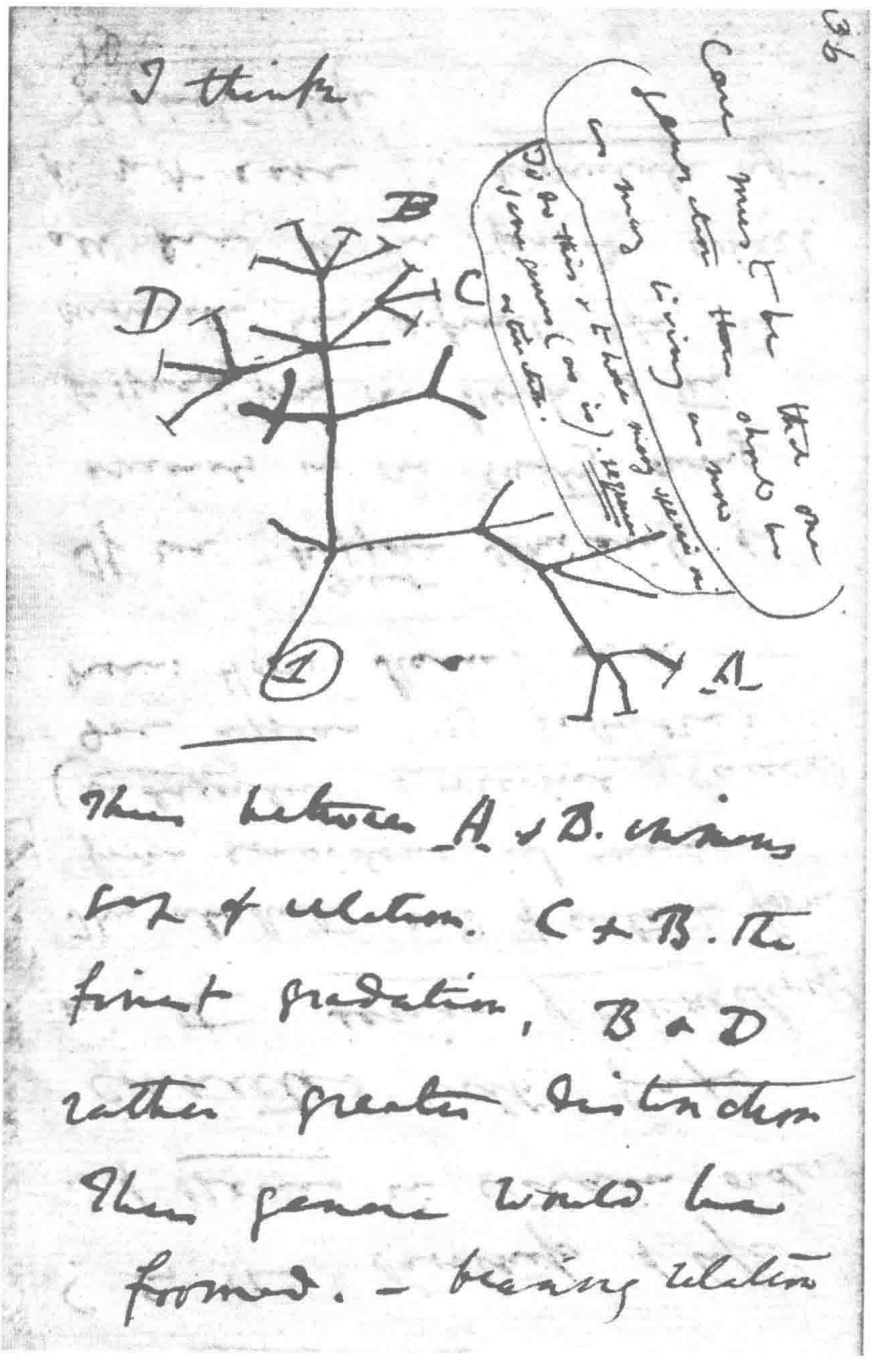

Frontispiece: Charles Darwin, 'Notebook B' (1837–38), f. 36.

For Alun Howard

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This book is based on 'The Longest Discovery: Darwin and the Politics of Evolution,' an undergraduate history course I taught at the University of Southampton from 2006 until 2011. I would like to thank my former students for making this experience so enjoyable, particularly those who went on to research and write undergraduate and postgraduate dissertations on related topics: Laura Mainwaring, Curtis McGlinchey, Alex Reynolds and particularly Ahren Lester. Like them, I was coming to the history of science from outside, from a background in British political and cultural history. If this book serves to make that transition easier for others, by providing a helpful introduction to a specialist field of historical enquiry, then that is due to the generosity with which several leading historians of science gave of their time and expertise. My greatest debts are to Pietro Corsi, Bernard Lightman, David Stack and one anonymous reader for their detailed responses to drafts. At Southampton the biologists John Allen and Lex Kraaijeveld took the time to explain current trends in evolutionary science to my students and I, while at Cambridge Rebecca Kilner kindly agreed to proofread my attempt to explain 'evo devo' in layman's terms. I am grateful to Anne Barrett and Judith Magee for granting my students and I access to the notebooks and other papers of Huxley and Wallace held at Imperial College and the Natural History Museum. At Bloomsbury Academic I would like to thank Rhodri Mogford for inviting me to write the book.

LIST OF ILLUSTRATIONS

TIMELINE

Science

1802	William Paley, *Natural Theology*
1807	Geological Society of London founded
1813	Robert Jameson publishes Cuvier's *Discours préliminaire* in English.
1826	Society for the Diffusion of Useful Knowledge founded
1831	British Association for the Advancement of Science (BAAS) founded
1833	First of Bridgewater Treatises published
1836	Richard Owen appointed Hunterian Professor
1844	[Chambers], *Vestiges of the Natural History of Creation*
1854	Huxley appointed Professor of Natural History at the School of Mines
1856	First recognized fossil of a Neanderthal found in Germany
1859	Darwin, *On the Origin of Species*
1860	Wilberforce/Huxley "debate" at BAAS in Oxford
1861	Fossil of *Archaeopteryx* ("first bird") skeleton found in Germany
1863	Kingsley, *The Water-Babies*
1864	X Club founded
1869	Huxley appointed president of the BAAS
1870	Physicist William Thomson proposes radically shorter history for earth
1871	Darwin, *The Descent of Man*; Anthropological Institute established
1874	John Tyndall's Belfast Address to the BAAS
1881	Natural History Museum opens
1882	Society for Psychical Research founded
1894	Salisbury's address to BAAS pronounces evolution "not proven"

The Wider World

1776 American Revolution

1789 French Revolution

1807 Slave trade abolished

1815 Battle of Waterloo/end of Napoleonic Wars
1817 Habeas Corpus suspended (owing to fears of reform/sedition)

1829 Catholic Emancipation (removal of restrictions on Roman Catholics)
1830 Liverpool and Manchester Railway opens (first in UK)

1832 Great Reform Act
1833 Slavery abolished in British Empire
1834 New Poor Law
1838 People's Charter drawn up (basis of Chartist movement)

1845 John Henry Newman converts to Roman Catholicism
1846 Corn Laws repealed
1848 Revolutions in France, German and Italian states

1851 Great Exhibition
1857 Indian Rebellion
1858 *SS Great Eastern* launched (largest steamship in the world)

1865 Morant Bay Rebellion
1866 First transatlantic telegraph cable laid
1867 Second Reform Act
1868 Gladstone becomes prime minister for the first time
1870 Forster's Education Act

1886 Gladstone fails to pass Home Rule for Ireland, splits Liberals
1887 Bloody Sunday Riot in London

1895 Oscar Wilde imprisoned after 'gross indecency' conviction
1899 Second Boer War (–1902)

1903 Women's Social and Political Union founded
1905 Aliens Act (UK's first restrictions on immigration)

1911 National Insurance Act lays foundation of welfare state
1914 World War I breaks out

A NOTE ON CURRENCY

Where contemporary equivalents are given for Victorian prices and salaries the figures are for 2005 purchasing power parity, using the historic currency converter on the National Archives' website, for the round date closest in time to the year in question (I use the 1860 rate for 1865 prices, 'rounding down' for any year ending in 5).
http://www.nationalarchives.gov.uk/currency

CONTENTS

Introduction: 'I think'

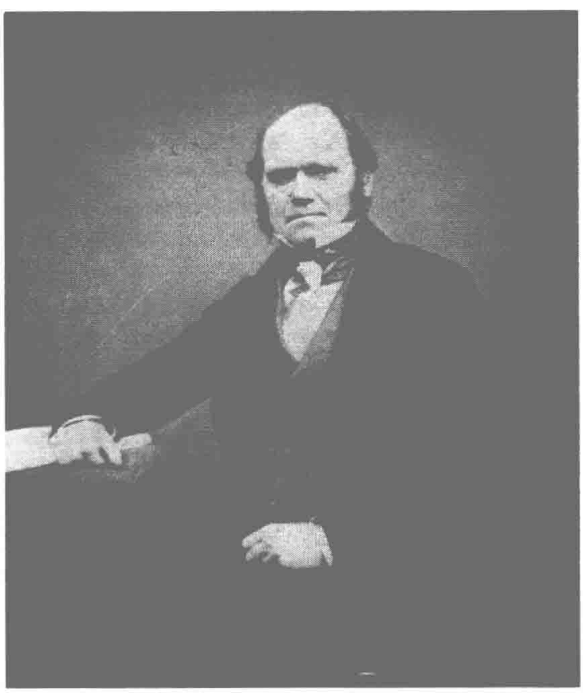

FIGURE 1 *Maull and Polyblank, Charles Darwin, c. 1855. Even before the publication of* On the Origin of Species *Darwin's* Beagle *voyage and associated publications had earned him a place in the* Literary and Scientific Portrait Club, *a 'virtual club' consisting of photographs of eminent Victorians. Only the eyes and brow hint at the 'mental rioting' beneath.*

At some point between July 1837 and January 1838 Charles Darwin wrote these words at the top of page 36 of 'Notebook B', adding a small sketch [Frontispiece] of a tree with various letters on its branches below. The palm-sized notebook was one of a series that Darwin had on the go at this point, each of them devoted to one of his scientific interests. B and M were devoted to transmutation, to the theory that species had not remained fixed since Creation, but had changed. As the scribblings around the sketch indicate, observations made on a voyage around the world on *HMS Beagle*, as well as wide reading, had led Darwin to speculate that a species might become extinct and yet leave behind several new species as its descendants. The new species would share a number of features. For centuries humans had used such similarities to classify living things into tidy groups. The tidiness of this classification was believed to reveal the tidiness of God's Creation, in which there was a place for everything, and everything had its place. What if, Darwin speculated, those features were marks of inheritance, rather than a divine plan?

The sketch was the first time Darwin had drawn the tree diagram which has since become synonymous with evolution. Another one would appear in his 1859 book *On The Origin Of Species*, showing the evolutionary links between wild and domesticated pigeons. One hundred and fifty years later the 'I think' sketch could be found on postcards, t-shirts, even as a tattoo. The world was celebrating the bicentenary of Darwin's birth and the 150th anniversary of his book, *On the Origin of Species*. Darwin's theory of evolution by natural selection was hailed as one of the greatest steps in mankind's ongoing project to know and understand the universe. Darwin had been born into a world lovingly created around the needs of one species, *Homo sapiens*, created by God in His own likeness thousands of years before. Darwin and his fellow Victorians lived to see humanity and God banished to the edge of that universe: the former reduced to the level of an improved ape, the latter missing, presumed dead. The universe was no longer 'our' universe, constructed around our needs. Darwin was under no illusions about the upset his discovery would cause. 'It is like confessing a murder', he wrote to a close friend.[1]

Few of the readers of this book will have been born into or grown up in a Creator-focused universe, or see their lives in terms of a relationship with a Supernatural Being. Such is the power of evolution as an idea, however, that it cannot help but confront us, all of us, 'religious,' agnostic or atheist, with unsettling questions. What does it mean to be human? Are we masters of our own destiny, able to make a free choice among real alternatives? Is our destiny in the hands of our genes, which really pull the strings? Can we resist the commands of these genes, these 'selfish replicators', as Richard Dawkins calls them in his famous book, *The Selfish Gene*?

[1]Charles Darwin to Joseph Hooker, 11 January 1844. Darwin Correspondence Database, http://www.darwinproject.ac.uk 729 (accessed on 2 May 2013).