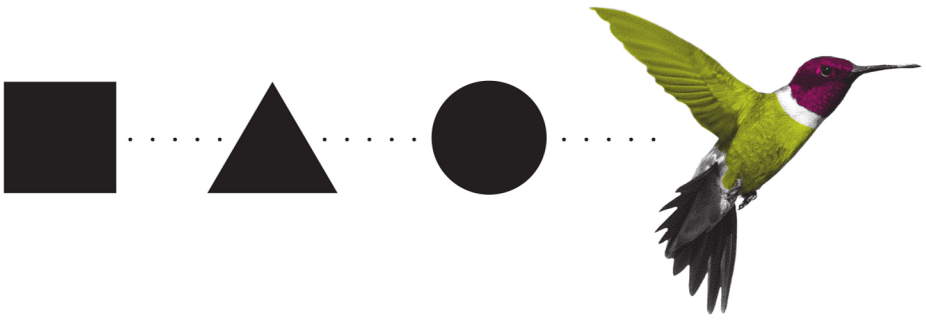
FOREWORD BY STEVE FULLER

THEISTIC EVOLUTION

A Scientific, Philosophical, and Theological Critique



Edited by

J. P. Moreland, Stephen C. Meyer, Christopher Shaw, Ann K. Gauger, and Wayne Grudem

"This volume fills a wide and expanding gap for Christians who continue to struggle with the relationship of evangelical Christianity to the claims of science. Specifically, for those who have rightly rejected the claims of unguided evolution, this book takes on the similar challenge of the possibility of theistic evolution. Scholarly, informative, well-researched, and well-argued, this will be the best place to begin to ferret out reasons for conflict among Christians who take science seriously. I highly recommend this resource."

K. Scott Oliphint, Professor of Apologetics and Systematic Theology and Dean of Faculty, Westminster Theological Seminary

"*Theistic evolution* means different things to different people. This book carefully identifies, and thoroughly debunks, an insidious, all-too-commonly accepted sense of the phrase even among Christians: that there is no physical reason to suspect life was designed, and that evolution proceeded in the unguided, unplanned manner Darwin himself championed."

Michael J. Behe, Professor of Biological Sciences, Lehigh University; author, *Darwin's Black Box* and *The Edge of Evolution*

"Evangelicals are experiencing unprecedented pressure to make peace with the Darwinian theory of evolution, and increasing numbers are waving the white flag. The tragic irony is that evolutionary theory is more beleaguered than ever in the face of multiplying scientific challenges and growing dissent. Until now there has been no consolidated scholarly response to theistic evolution that combines scientific, philosophical, and theological critiques. I was excited to hear about this ambitious project, but the final book has exceeded my expectations. The editors have assembled an impressive cast of experts and the content is top-notch. Theistic evolutionists, and those swayed by their arguments, owe it to themselves to read and digest this compendium of essays. This book is timely and necessary—quite literally a godsend."

James N. Anderson, Associate Professor of Theology and Philosophy, Reformed Theological Seminary, Charlotte; author, *What's Your Worldview?*

"Repeating the error of medieval Christianity, theistic evolution absolutizes the words of finite, fallible humans and relativizes the Word of an infinite, infallible God. As this tremendous and timely collection thoroughly demonstrates, scientific stagnation, circular philosophy, and heterodox theology are the inevitable results. This is simply the best critique of theistic evolution available."

Angus Menuge, Chair of Philosophy, Concordia University Wisconsin; President, Evangelical Philosophical Society; author, *Agents Under Fire: Materialism and the Rationality of Science*; Editor, *Reading God's World: The Scientific Vocation*

"This significant book persuasively argues that theistic evolution fails as a theory—scientifically, philosophically, and biblically. And with its broad-ranging collection of essays, it mounts a very impressive case. Strongly recommended, both for those who seek to defend Christianity intelligently and for those who find Christianity implausible because of the claims of neo-Darwinism."

Michael Reeves, President and Professor of Theology, Union School of Theology

"The theistic evolution solution to the creation-evolution controversy herein encounters a substantial, sustained, and trenchant critique. The team of scientific, philosophical, and theological scholars assembled by the editors have joined to confront the venerable theory with a stinging challenge that its adherents will have to answer if they value their scholarly integrity. This is necessary reading for those who wrestle with the great questions surrounding the origins of life."

Peter A. Lillback, President, Westminster Theological Seminary

"This landmark achievement contains an amazing collection of chapters by a powerful group of fully qualified experts in molecular biology, mathematics, philosophy, and theol-ogy. The chapters are clear, detailed in addressing all aspects of theistic evolution, and of a tone in keeping with 1 Peter 3:15: 'with gentleness and respect.' I consider this a must-have book for any Christian who wants to be able to give compelling answers to others who believe in theistic evolution."

Richard A. Carhart, Professor Emeritus of Physics, University of Illinois at Chicago

"This book offers a much-needed, comprehensive critique of evolutionary creationism (theistic evolution), covering its scientific, philosophical, theological, and biblical deficiencies. It devotes much space in particular to the scientific side. This focus is needed because of the common, unwarranted assumption that Darwinism is doing well as measured by scientific evidence. Several articles, from different angles, show how much Darwinism depends on seeing all biological evidence through the lens of a prior commitment to faith in the philosophy of naturalism—particularly the ungrounded assumption that unguided natural forces must suffice as a complete account of origins."

Vern S. Poythress, Professor of New Testament Interpretation, Westminster Theological Seminary

"'In wisdom you have made them all,' says the psalmist of God's activities in nature (Ps. 104:24). But believers today, often blinded by modern science, fail to see that divine wisdom. This valuable volume challenges the assumptions of much scientific endeavor and proposes a fresh paradigm that is open to God's involvement in nature. It deserves a wide and thoughtful readership."

Gordon Wenham, Emeritus Professor of Old Testament, University of Gloucestershire, United Kingdom

"Few scholars even marginally knowledgeable regarding the nature of this debate could read objectively the lineup of scholars in this volume and not be impressed. Beyond the scholars' academic credentials, the topics covered are both sophisticated and timely. For this reviewer, the experience caused me to respond time and again: 'I want to start right there . . . or maybe there . . . wow—have to read that one first . . .' The topic is not always an easy target, but after almost one thousand pages of critique across interdisciplinary lines, I do not think that it could be bettered. Kudos! Highly recommended."

Gary R. Habermas, Distinguished Research Professor and Chair, Department of Philosophy, Liberty University

"As the debate over the origins of the universe, earth, and humans continues, and Christians grapple to understand the relationship between science and Scripture, evolution and creation, the voices in this book need to be heard. Scientific data need not be in opposition to what the Bible teaches about God and his world. The big questions about life are simply beyond the reach of 'objective' analysis. This volume critiques theologically and philosophically the flaws of positions that marginalize God from the process."

James Hoffmeier, Professor of Old Testament and Ancient Near Eastern History and Archaeology, Trinity Evangelical Divinity School

"*Theistic Evolution* is a carefully crafted, academically sophisticated interdisciplinary challenge to the attempt to wed Christian theism to any version of the Darwinian project. I am awed by its scope and by the magnificent success of its intentions. Whether your interest is in the scientific deficiencies, the philosophical failings, or the theological dangers of Darwinism hitched to theism, look no further than this thorough analysis. *Theistic Evolution* is simply the most comprehensive and convincing critique of the topic I've ever read—a singular resource for careful thinkers—replacing a dozen books on my shelf."

Gregory Koukl, President, Stand to Reason; author, *Tactics* and *The Story of Reality*

"An increasing number of evangelicals are advocating theistic evolution as the best explanation of human origins, thereby denying the special creation of a historical Adam. Without taking any specific view as to the age to the earth, this important new book demonstrates that theistic evolution fails to take proper account of Genesis 1–3 as a historical narrative. Leading scholars from a variety of academic disciplines argue that theistic evolution is exegetically ill-founded, theologically damaging, scientifically implausible, and philosophically unjustifiable. Written with an irenic tone toward those it critiques, this book will help guard against false teaching in the church that undermines the gospel and will also provide apologetic help for confident evangelism in a secular world."

John Stevens, National Director, Fellowship of Independent Evangelical Churches, United Kingdom

"With the 'death of God' and the 'hermeneutics of suspicion' having captured the academy decades ago, the apologetic discussion moved decisively to the nature and origin of human beings. With this volume, the editors and contributors to *Theistic Evolution* have given us an important and much-needed resource for the conversation currently taking place within evangelicalism. Comprehensive in its breadth, specific in its critique, and confidently nuanced in its tone, each chapter contributes to a thorough rebuttal of the idea that theistic evolution is compatible with either historic Christian faith, sound reasoning, or rigorous science. But while written by specialists, *Theistic Evolution* is remarkably approachable to the average reader. I highly recommend this volume to students, pastors, educators, and anyone else who cares deeply about the discussion of human origins. This is a major contribution to one of the most important debates of our time."

Michael Lawrence, Senior Pastor, Hinson Baptist Church, Portland, Oregon; author, *Biblical Theology in the Life of the Church*

"Under the banner of 'theistic evolution,' a growing number of Christians maintain that God used evolution as his method for creation. This I believe to be the worst of all possibilities. It is one thing to believe in evolution; it is quite another to blame God for it. Indeed, theistic evolution is a contradiction in terms—like the phrase "flaming snowflakes." God can no more direct an undirected process than he can create a square circle. Yet this is precisely what theistic evolution presupposes. Modern Christians too often buy high and sell low—just as neo-Darwinian evolutionism is fighting for its very life, it is being propped up by an irrational hypothesis. *Theistic Evolution* is the most thorough and incisive refutation of this dangerous presupposition. I strongly recommend this volume!"

Hank Hanegraaff, President, Christian Research Institute; Host, *Bible Answer Man* broadcast

"This volume is the most comprehensive study on the relation between evolution and Christian faith I have discovered so far. While opening up fascinating firsthand insights into cutting-edge scientific results, at the same time the book treats the reader to a bird's-eye view, asking the fundamental philosophical and theological questions and delving into the underlying worldview assumptions. It provides a very substantial contribution to the ever-ongoing dispute between naturalism and Christian faith in the areas of philosophy, theology, and the sciences."

Alexander Fink, Director, Institute for Faith and Sciences, Marburg, Germany

"Essentially, theistic evolution says Charles Darwin and Richard Dawkins got the science right, but that God is still somehow involved. Putting this view into the crosshairs, this book argues convincingly that the science of evolution is in fact wrong, and that any theistic gloss one puts on it is thus doubly wrong."

William A. Dembski, Former Senior Fellow, Discovery Institute; author, *Intelligent Design: The Bridge Between Science and Theology*; *The Design Revolution*; and *Intelligent Design Uncensored*

"*Theistic Evolution* is a major contribution to the very lively debate of exactly how to understand the 'data' from God's revelation of himself in his Word with the 'data' from his revelation of himself in his world. Previous contributions to this debate have generally focused on the data from either science or Scripture. *Theistic Evolution* benefits from its comprehensive analysis from theologians, philosophers, and scientists in the same book. Whatever are your current views, *Theistic Evolution* will provide analysis from some of the most prominent critics in this conversation that should be helpful to people on both sides of this debate."

Walter Bradley, Former Professor of Mechanical Engineering, Baylor University

"The question of origins rarely fails to attract interest, not least because it is overloaded with worldview implications. For too long the increasingly shaky modern 'Darwinian' synthesis has been accommodated into theological thinking. This remarkable book exposes how scientifically and philosophically preposterous the notion of theistic evolution really is. An authoritative and vital contribution to the topic!"

David J. Galloway, President, Royal College of Physicians and Surgeons of Glasgow; Honorary Professor, College of Medical, Veterinary and Life Sciences, University of Glasgow

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A Scientific, Philosophical, and Theological Critique

Edited by J. P. Moreland (philosophy),
Stephen C. Meyer, Christopher Shaw, Ann K. Gauger (science),
and Wayne Grudem (Bible/theology)

Foreword by Steve Fuller

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To Peter Loose,

who persuaded us of the need for this book
and encouraged us throughout the process

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Contributors

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Douglas D. Axe is the director of Biologic Institute, a founding editor of *BIO-Complexity*, and the author of *Undeniable—How Biology Confirms Our Intuition that Life Is Designed*. After a Caltech PhD, he held research positions at the University of Cambridge and the Cambridge Medical Research Council Centre. His work and ideas have been featured in the *Journal of Molecular Biology*, the *Proceedings of the National Academy of Sciences*, and *Nature*. In *Undeniable* he brings the main conclusions of his work to a general audience by showing that our intuitive sense that accidental causes cannot have invented life is correct.

Günter Bechly is a German paleontologist and senior research scientist at Biologic Institute. His research focuses on the fossil history of insects, discontinuities in the history of life, and the waiting time problem. He earned his PhD, summa cum laude, in paleontology from the Eberhard Karls University of Tübingen (Germany), where he studied the evolution of dragonflies and their wings. He worked from 1999–2016 as curator for amber and fossil insects at the State Museum of Natural

History in Stuttgart, as successor of Dieter Schlee and Willi Hennig. He has described more than 160 new fossil taxa, including three new insect orders, and published more than 70 scientific articles in peer-reviewed journals and a book with Cambridge University Press. His research has received broad international media coverage, in particular his discoveries of *Coxoplectoptera* and the predatory roach *Manipulator*.

C. John Collins is professor of Old Testament at Covenant Seminary in St. Louis, Missouri. With degrees from MIT (SB, SM) and the University of Liverpool (PhD), he has been a research engineer, a church planter, and a seminary teacher. He was Old Testament chairman for the English Standard Version of the Bible, and is author of *Science and Faith: Friends or Foes?* and *Did Adam and Eve Really Exist?: Who They Were and Why You Should Care*, and is currently writing commentaries on Numbers, Psalms, and Isaiah. He married Diane in 1979, and they have two grown children.

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Stephen Dilley is an associate professor of philosophy at St. Edward's University in Austin, Texas. He is editor of *Darwinian Evolution and Classical Liberalism* (Lexington, 2013) and coeditor of *Human Dignity in Bioethics* (Routledge, 2012). Dilley has published essays in *British Journal for the History of Science*, *The Journal of the International Society for the History of Philosophy of Science*, *Studies in History and Philosophy of Biological and Biomedical Sciences*, and elsewhere.

He enjoys history and philosophy of biology, political philosophy, and bowhunting.

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Ann K. Gauger is director of science communication at the Discovery Institute, and senior research scientist at Biologic Institute in Seattle. She received her PhD from the University of Washington and was a postdoctoral fellow at Harvard. Her research at Biologic Institute has been on both protein evolution and human origins. As director of science communication, she communicates evidence for intelligent design to the wider public. Her scientific work has been published in *Nature*, *Development*, *Journal of Biological Chemistry*, *BIO-Complexity*, among others, and she coauthored the book *Science and Human Origins*.

Wayne Grudem is research professor of theology and biblical studies at Phoenix Seminary. He received a BA (Harvard), an MDiv and a DD (Westminster Seminary, Philadelphia), and a PhD in New Testament (University of Cambridge). He has published over twenty books including *Systematic Theology*, was a translator for the ESV Bible, and was the general editor for the *ESV Study Bible*. He is a past president of the Evangelical Theological Society. He and Margaret have been married since 1969 and have three adult sons.

Ola Hössjer received a PhD in mathematical statistics from Uppsala University, Sweden, in 1991. Appointed a professor of mathematical statistics at Lund University in 2000, he has held the same position at Stockholm University since 2002. His research focuses on developing statistical theory and probability theory for various applications,

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Matti Leisola holds a degree as doctor of science in technology (1979) from Helsinki University of Technology; he received his habilitation in 1988 from Swiss Federal Institute of Technology (ETH) in biotechnology. He was awarded the Latsis Prize of the ETH Zurich in 1987. He is currently professor emeritus of bioprocess engineering at Aalto University. Leisola's scientific expertise is in microbial and enzyme technology. Leisola was the research director at Cultor Ltd, an international food and biotech company, during 1991–1997. Leisola has authored and coauthored over 140 scientific peer-reviewed articles which have been cited over 5,000 times.

Casey Luskin is a PhD student in science and an attorney. He earned his MS in earth sciences from the University of California, San Diego, and a law degree from the University of San Diego. Luskin previously worked as research coordinator at Discovery Institute, helping scientists and educators investigate intelligent design. He has contributed to multiple books, including *Science and Human Origins*, *Traipsing into Evolution*, *Intelligent Design 101*, *God and Evolution*, *More than Myth*, and *Discovering Intelligent Design*. Luskin is cofounder of the Intelligent Design and Evolution Awareness (IDEA) Center (www.ideacenter.org), a non-profit helping students start "IDEA Clubs" on campuses.

Stephen C. Meyer received his PhD in the philosophy of science from the University of Cambridge. A former geophysicist and philosophy professor at Whitworth University, he now directs Discovery Institute's Center for Science and Culture in Seattle. He has authored the *New York Times* best-seller *Darwin's Doubt: The Explosive Origin of Animal Life and the Case for Intelligent Design* (HarperOne, 2013) as well

as *Signature in the Cell: DNA and the Evidence for Intelligent Design* (HarperOne, 2009) which was named a Book of the Year by the *Times* (of London) *Literary Supplement* in 2009.

J. P. Moreland is distinguished professor of philosophy at Talbot School of Theology, Biola University in La Mirada, California, where he has taught for twenty-six years. He has authored, edited, or contributed papers to ninety-five books, including *Does God Exist?* (Prometheus), *Universals* (McGill-Queen's), *Consciousness and the Existence of God* (Routledge), and *Blackwell Companion to Natural Theology* (Blackwell). He has also published over eighty-five articles in journals such as *Philosophy and Phenomenological Research*, *American Philosophical Quarterly*, *Australasian Journal of Philosophy*, *MetaPhilosophy*, *Philosophia Christi*, *Religious Studies*, and *Faith and Philosophy*. He has also published 120 articles in magazines and newspapers. In 2016, Moreland was recognized by Best Schools as among the fifty most influential philosophers in the world.

Paul A. Nelson studied evolutionary theory and the philosophy of science at the University of Chicago, where he received his PhD (1998). His dissertation examined Darwinian universal common descent. He is a fellow of the Discovery Institute, and an adjunct professor for Biola University's MA program in Science and Religion. Nelson's scholarly articles have appeared in journals such as *Biology and Philosophy*, *Zygon*, *Rhetoric and Public Affairs*, and *BioComplexity*, and book chapters in the anthologies *Mere Creation*, *Signs of Intelligence*, *Intelligent Design Creationism and Its Critics*, and *Darwin, Design, and Public Education*. His memberships include the Society for Developmental Biology (SDB) and the International Society for the History, Philosophy, and Social Studies of Biology (ISHPSSB).

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Colin R. Reeves holds a PhD from Coventry University in the UK, where he was professor of operational research. He is a chartered statistician, and his research interests focus on the mathematical and statistical foundations of evolutionary algorithms, on which he has published extensively. His book *Genetic Algorithms: A Guide to GA Theory* (with Jonathan Rowe) was the first systematic treatment of evolutionary algorithm theory. Recently retired as professor emeritus, he continues to be active in research, consultancy, and conference speaking.

Christopher Shaw received his BSc (honors) in biological sciences from the University of Ulster in 1980 and his PhD in molecular endocrinology from Queen's University Belfast in 1984. He has held the positions of lecturer, reader, and professor in Queen's University, Faculty of Medicine, and of professor of biotechnology in the University of Ulster. He is currently professor of drug discovery in the School of Pharmacy, Queen's University. His research interest is in all aspects of bioactive peptides. He has authored some 500 peer-reviewed scientific papers and has delivered numerous invited international lectures, and is cofounder of a biomarker discovery company.

James M. Tour, a synthetic organic chemist, is presently the T. T. and W. F. Chao Professor of Chemistry, professor of computer science, and professor of materials science and nanoengineering at Rice University. Tour has over 600 research publications and over 120 patents with total citations over 69,000. He was inducted into the National Academy of Inventors in 2015, named among "The 50 Most Influential Scientists in the World Today" by TheBestSchools.org in 2014, listed in "The World's Most Influential Scientific Minds" by Thomson Reuters ScienceWatch.com in 2014, and named "Scientist of the Year" by *R&D* magazine in 2013.

Sheena Tyler spent eight years teaching biology after undergraduate studies in dentistry and zoology. She received her PhD in zoology at

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Jonathan Wells has a PhD in religious studies (Yale University, 1986) and a PhD in molecular and cell biology (University of California at Berkeley, 1995). He is the author of *Icons of Evolution* (2000), *The Politically Incorrect Guide to Darwinism and Intelligent Design* (2006), and *The Myth of Junk DNA* (2011), and coauthor (with William Dembski) of *The Design of Life* (2008). He is currently a senior fellow at the Discovery Institute in Seattle.

John G. West is vice president of Discovery Institute and associate director of the Institute's Center for Science and Culture, which he cofounded with Stephen C. Meyer in 1996. He has written or edited twelve books, including two about C. S. Lewis: *The C. S. Lewis Readers' Encyclopedia* and *The Magician's Twin: C. S. Lewis on Science, Scientism, and Society*. His other books include *Darwin Day in America: How Our Politics and Culture Have Been Dehumanized in the Name of Science*; *The Politics of Revelation and Reason*; and

Celebrating Middle-Earth: The Lord of the Rings *as a Defense of Western Civilization*. West was previously associate professor of political science at Seattle Pacific University, where he chaired the Department of Political Science and Geography. He holds a PhD in government from Claremont Graduate University, and he has been interviewed by media outlets such as *Time*, *The New York Times*, *CNN*, and *Fox News*.

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Foreword

It is an honor and a pleasure to write the foreword to this book, which sets a new standard for Christian engagement with contemporary science. The cumulative effect of the set of papers assembled in this volume is to suggest that the "God hypothesis" (or what philosophers call "divine action") remains very much on the table as a scientific explanation for events in the history of life. Christians who fail to deal seriously with that point—perhaps out of deference to secular scientific authority—end up selling short both science and their faith. I take this to be the most important challenge that the scientists and scholars in these pages are offering to theistic evolutionists.

By conventional Christian standards, I do not think that I would count as a person of faith—though I may count as one by conventional secular standards. In any case, I write as someone who was confirmed in the Roman Catholic Church and studied on scholarship with the Jesuits before attending university. The Jesuits are notoriously rationalistic in their approach to matters of faith, which has always appealed to me. I was never compelled to declare belief in God but was strongly encouraged to question default secular solutions to problems of knowledge and action. As a result, I have been a "seeker," a term originally used to characterize Christian dissenters from the Church of England in the seventeenth century, which Thomas Henry Huxley appropriated two centuries later, when he described himself as an "agnostic" on matters of faith.

The real question for me has been not whether God exists but how the deity operates in the world—including all the issues that raises for what we should believe and how we should act. In this respect, I have always regarded "atheism" in the true sense (that is, anti-theism, not simply anti-clericalism) as a moral and/or epistemic failure—perhaps a prudishness if not absence of the imagination, which when threatened can morph into bigotry toward that which one simply fails to

understand. The neologism "theophobia" would not be out of place. My Jesuit teachers would go one step further and ask atheists the following question: What advantage would your understanding of reality gain by dismissing out of hand the existence of a divine intelligence, such that it would be worth the loss of meaning to your life and reality more generally?

But this is a book about theists who contest the place of modern science in Christianity. The charge laid at the doorstep of theistic evolutionists is that the doorstep is exactly where they leave their religious commitments when they enter the house of science. They do this, even though the weight of the evidence from across the natural sciences does not oblige such a conclusion. On the contrary, from cosmology to biology, it is becoming increasingly clear that science's failure to explain matters at the most fundamental level is at least in part due to an institutional prohibition on intelligent design as one of the explanatory options. In these pages, "methodological naturalism" is the name by which this prohibition goes, but it could be equally called "methodological atheism."

Like some leaders of the intelligent design movement, I was formally trained in a field called "history and philosophy of science." As the name indicates, the field combines history, philosophy, and science in search of a lost sense of purpose in organized inquiry that began with the proliferation of academic disciplines in the nineteenth century. The field's guiding idea is that if we understand how something as distinctive as science came about and was sustained over the centuries, we might have a better sense of what it says about us and hence where it and we should be going. The field's founder was William Whewell, an Anglican theologian who introduced the natural sciences into the Cambridge University curriculum in the mid-nineteenth century. He also coined the word "scientist" in its modern sense.

History and philosophy of science truly came of age in the 1960s, a period of widespread disaffection with science's complicity in what was then called the "military-industrial complex." This disaffection was expressed in light of a general understanding that the West had experienced a "Scientific Revolution" in the seventeenth century, which radically transformed how people thought about themselves and their

relationship to the cosmos. What most struck the historians and philosophers of science who investigated this "take off" point for the human condition was that it was part of a more general spiritual awakening of Christian Europe, what is normally called the Protestant Reformation. And precisely because the original turn to science involved a break from the established authority of the Roman Catholic Church, science's submission to established secular authority during the Cold War appeared to betray that founding spirit. Readers of this volume should consider the challenge to theistic evolution found in this volume in a similar light.

While it is generally accepted that the Protestant Reformation overlapped with the Scientific Revolution, this is often treated as a mere historical accident, when in fact something closer to a causal connection obtains between the two events. The first movement in human history to trust the ordinary person's ability to judge the weight of evidence for themselves was the drive to get people to read the Bible for themselves. Until the sixteenth century, Christianity found itself in the peculiar position of being a faith founded on a sacred book through which God communicated with humans, yet relatively few of the faithful could read, let alone affirm its contents. The Protestant Reformation reversed that. The Scientific Revolution then extended that "judge for yourself" attitude to all of physical reality by explicitly treating nature as a second sacred book. Thus, it is not surprising that Francis Bacon, with whom the "scientific method" is normally associated, was also instrumental in the production of the King James Version of the Bible.

Today science enjoys an unprecedented authority because of both the number of people who believe in it and the number of subjects to which their belief applies. In this respect, our world resembles the one faced by the Protestant Reformers in that people today are often discouraged, because of the authority of science, from testing their faith in its claims by considering the evidence for themselves. Instead they are meant to defer to the authority of academic experts, who function as a secular clergy. But unlike the sixteenth century, when the Protestant Reformers themselves drove the mass literacy campaigns to get people to read the Bible, we live in a time of unprecedented access to knowledge about science, both formally and informally—from the classroom to

the Internet. Moreover, public opinion surveys consistently show that people are pro-science as a mode of inquiry but anti-science as a mode of authority. And so, while it has become part of secular folklore to say that the Catholic Church "repressed" the advancement of science, if "repression" implies the thwarting of an already evident desire and capacity to seek knowledge, then today's scientific establishment seriously outperforms the early modern Church—and perhaps with the consent of theistic evolutionists.

I commend this book as providing an unprecedented opportunity for educated nonscientists to revisit the spirit of the Reformation by judging for themselves what they make of the evidence that seems to have led theistic evolutionists to privilege contemporary scientific authority above their own avowed faith. John Calvin famously likened the reading of the Bible to the wearing of spectacles to correct defective eyesight. Historically speaking, the original Scientific Revolution was largely the result of those who took his advice. But what was it about the Bible that led such a wide variety of inquirers, all wrestling with their Christian faith, to come up with the form of science that we continue to practice today? This is an important question to ask because there is no good historical reason to think that science as we know it would have arisen in any other culture—including China, generally acknowledged to have been the world's main economic power prior to the nineteenth century—had it not arisen in Christian Europe.

A distillation of research in the history and philosophy of science suggests two biblical ideas as having been crucial to the rise of science, both of which can be attributed to the reading of *Genesis* provided by Augustine, an early church father, whose work became increasingly studied in the late Middle Ages and especially the Reformation. Augustine captured the two ideas in two Latin coinages, which prima facie cut against each other: *imago dei* and *peccatum originis*. The former says that humans are unique as a species in our having been created in the image and likeness of God, while the latter says that all humans are born having inherited the legacy of Adam's error, "original sin." Once Christians began to read the Bible for themselves, they too picked out those ideas as salient in how they defined their relationship to God, which extended to how they did science.

And this sensibility carried into the modern secular age, as perhaps best illustrated in our own day by Karl Popper's slogan for the scientific attitude as the method of "conjectures and refutations," the stronger the better in both cases. We should aspire to understand all of nature by proposing bold hypotheses (something of which we are capable because of the *imago dei*) but to expect and admit error (something to which we are inclined because of the *peccatum originis*) whenever we fall short in light of the evidence. The experimental method developed by Francis Bacon was designed to encourage just that frame of mind. And William Whewell was only one of numerous theologians and philosophers who have suggested ways of testing and interpreting the findings of science to reflect that orientation. Unfortunately we live in a time in which only those who have themselves conducted science in some authorized manner are allowed to say anything about what science is and where it should go.

Theistic evolution should be understood as a deformation that results under these conditions. Its advice to the faithful is to keep calm, trust the scientific establishment, and adapt accordingly, even if it means ceding the Bible's cognitive ground. Yet, insofar as science has succeeded as it has because of the revival of the *imago dei* and *peccatum originis* account of humanity, one might reasonably ask whether theistic evolution amounts to an outright betrayal of both the scientific and the Christian message. Christianity's direction of travel since the Reformation has been that each person is entitled and maybe even obliged to decide on matters that impinge on the nature of their own being—and to register that publicly. This volume provides an incredibly rich resource for Christians to do exactly that with regard scientific matters. I hope it will empower them to question and propose constructive alternatives to the blanket endorsement of "evolution" by theistic evolutionists.

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Scientific and Philosophical Introduction

Defining Theistic Evolution

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In this book we will provide a comprehensive scientific, philosophical, and theological critique of the idea known as theistic evolution. But before we can do that, we will need to define what the proponents of this perspective mean by "theistic evolution"—or "evolutionary creationism," as it is sometimes now called. Indeed, before we can critique this perspective we will need to know what exactly it asserts. Is it a logically coherent position? Is it a theologically orthodox position? Is it supported by, or consistent with, the relevant scientific evidence? The answer to each of these questions depends crucially on the definition or sense of "evolution" in play. "Theistic evolution" can mean different things to different people largely because the term "evolution" itself has several distinct meanings.

This introductory essay will describe different concepts of theistic evolution, each of which corresponds to a different definition of the term *evolution*. It will also provide an initial critical evaluation of (and conceptual framework for understanding) those conceptions of theistic evolution that the authors of this volume find objectionable. The framework in this essay will help readers understand the more detailed critiques of specific versions of theistic evolution that will follow in subsequent essays, and it will help readers to understand how the different critical essays to follow mutually reinforce and complement

each other. Both here and in the essays that follow, we will focus most (but not all) of our critical concern on one particular formulation of the concept of theistic evolution—in particular, the one that affirms the most scientifically controversial, and also most religiously charged, meaning of *evolution*.

Since the term evolution has several distinct meanings, it will first be necessary to describe the meanings that are commonly associated with the term in order to evaluate the different possible concepts of theistic evolution that proponents of the idea may have in mind. It will be shown that three distinct meanings of the term evolution are especially relevant for understanding three different possible concepts of *theistic* evolution. Yale biologist Keith Stewart Thomson, for example, has noted that in contemporary biology the term evolution can refer to: (1) change over time, (2) universal common ancestry, and (3) the natural mechanisms that produce change in organisms.[1] Following Thomson, this introduction will describe and distinguish these three distinct meanings of "evolution" in order to foster clarity in the analysis and assessment of three distinct concepts of "theistic evolution."

Evolution #1: "Change over Time"

Evolution in its most rudimentary sense simply affirms the idea of "change over time." Many natural scientists use "evolution" in this first sense as they seek to reconstruct a series of past events to tell the story of nature's history.[2] Astronomers study the life cycles of stars and the "evolution" (change over time) of the universe or specific galaxies; geologists describe changes ("evolution") in the earth's surface; biologists note ecological changes within recorded human history, which, for example, may have transformed a barren island into a mature forested island community. These examples, however, have little or nothing to do with the modern "neo-Darwinian" theory of evolution.

In evolutionary biology, evolution defined as change over time can also refer specifically to the idea that the life forms we see today are

1. Keith S. Thomson, "The Meanings of Evolution," *American Scientist* 70 (1982): 521–539.
2. Peter J. Bowler, "The Changing Meaning of 'Evolution,'" *Journal of the History of Ideas* 36 (1975): 99.

different from the life forms that existed in the distant past. The fossil record provides strong support for this idea. Paleontologists observe changes in the types of life that have existed over time as represented by different fossilized forms in the sedimentary rock record (a phenomenon known as "fossil succession"). Many of the plants and animals that are fossilized in recent rock layers are different from the plants and animals fossilized in older rocks. The composition of flora and fauna on the surface of the earth today is likewise different from the forms of life that lived long ago, as attested by the fossil record.

Evolution defined as "change over time" can also refer to observed minor changes in features of individual species—small-scale changes that take place over a relatively short period of time. Most biologists think this kind of evolution (sometimes called "microevolution") results from a change in the proportion of different variants of a gene (called alleles) within a population over time. Thus, population geneticists will study changes in the frequencies of alleles in gene pools. A large number of precise observations have established the occurrence of this type of evolution. Studies of melanism in peppered moths, though currently contested,[3] are among the most celebrated examples of *microevolution*. The observed changes in the size and shape of Galápagos finch beaks in response to changing climate patterns provide another good example of small-scale change over time within a species.

Evolution #2: "Common Descent" or "Universal Common Descent"

Many biologists today also commonly use the term *evolution* to refer to the idea that all organisms are related by common ancestry. This idea is also known as the theory of universal common descent. This theory affirms that all known living organisms are descended from a single common ancestor somewhere in the distant past. In *On the Origin of Species*, Charles Darwin made a case for the truth of evolution in this second sense. In a famous passage at the end of the *Origin*, he

3. Jerry Coyne, "Not Black and White," review of Michael Majerus's 1998 book, *Melanism: Evolution in Action*, *Nature* 396 (1998): 35–36; Jonathan Wells, "Second Thoughts about Peppered Moths," *The Scientist* 13 (1999), 13.

argued that "probably all the organic beings which have ever lived on this earth have descended from some one primordial form."[4] Darwin thought that this primordial form gradually developed into new forms of life, which in turn gradually developed into other forms of life, eventually producing, after many millions of generations, all the complex life we see in the present.

Biology textbooks today often depict this idea just as Darwin did, with a great branching tree. The bottom of the trunk of Darwin's tree of life represents the first primordial organism. The limbs and branches of the tree represent the many new forms of life that developed from it. The vertical axis on which the tree is plotted represents the arrow of time. The horizontal axis represents changes in biological form, or what biologists call "morphological distance."

Darwin's theory of biological history is often referred to as a "monophyletic" view of the history of life because it portrays all organisms as ultimately related as a single connected family. Darwin argued that this idea best explained a variety of lines of biological evidence: the succession of fossil forms, the geographical distribution of various species (such as the plants and animals of the Galápagos Islands), and the anatomical and embryological similarities among otherwise different types of organisms.

Evolution in this second sense not only specifies that all life shares a common ancestry; it also implies that virtually no limits exist to the amount of morphological change that can occur in organisms. It assumes that relatively simple organisms can, given adequate time, change into much more complex organisms. Thus, evolution in this second sense entails not only change but also gradual, continuous—and even unbounded—biological change.

Evolution #3: "The Creative Power of the Natural Selection/Random Variation (or Mutation) Mechanism"

The term *evolution* is also commonly used to refer to the cause, or mechanism, that produces the biological change depicted by Darwin's

4. Charles Darwin, *On the Origin of Species by Means of Natural Selection*, facsimile of the first ed. (London: John Murray, 1859; repr., Cambridge, MA: Harvard University Press, 1964), 484.

tree of life. When evolution is used in this way, it usually refers to the mechanism of natural selection acting on random variations or mutations. (Modern "neo-Darwinists" propose that natural selection acts on a special kind of variation called genetic mutations. Mutations are random changes in the chemical subunits that convey information in DNA. Modern neo-Darwinists would also affirm the role of other apparently undirected evolutionary mechanisms such as genetic drift, although such mechanisms are typically thought to be of minor importance in comparison with mutation/selection in generating the adaptive complexity of life.)

This third use of *evolution* entails the idea that the natural selection/mutation mechanism has the *creative power* to produce fundamental innovations in the history of life. Whereas the theory of universal common descent postulated *a pattern* (the branching tree) to represent the history of life, the mechanism of natural selection and random variation/mutation represents a causal *process* that can allegedly generate the large-scale macroevolutionary change implied by the second meaning of evolution (see above). Since proponents of the creative power of the mutation/natural selection mechanism see it (and other similarly materialistic evolutionary mechanisms) as explaining the origin of all the forms and features of life, this definition of evolution is closely associated with, or encompasses, another definition of evolution.

Evolution #3a: The Natural Selection/Random Variation (or Mutation) Mechanism Can Explain the Appearance of Design in Living Systems apart from the Activity of an Actual Designing Intelligence.

Evolutionary biologists since Darwin have affirmed that the natural selection/random variation mechanism not only explains the origin of all new biological forms and features; they have also affirmed a closely related idea, namely, that this mechanism can explain one particularly striking feature of biological systems: the *appearance of design*. Biologists have long recognized that many organized structures in living organisms—the elegant form and protective covering of the coiled nautilus; the interdependent parts of the vertebrate eye; the interlocking bones, muscles, and feathers of a bird wing—"give the appearance of

having been designed for a purpose."[5] During the nineteenth century, before Darwin, biologists were particularly struck by the way in which living organisms seemed well adapted to their environments. They attributed this adaptation of organisms to their environments to the planning and ingenuity of a powerful designing intelligence.

Yet Darwin (and modern neo-Darwinists) have argued that the appearance of design in living organisms could be more simply explained as the product of a purely undirected mechanism, in particular the variation/natural selection mechanism. Darwin attempted to show that the natural selection mechanism could account for the appearance of design by drawing an analogy to the well-known process of "artificial selection" or "selective breeding." Anyone in the nineteenth century familiar with the breeding of domestic animals—dogs, horses, sheep, or pigeons, for example—knew that human breeders could alter the features of domestic stock by allowing only animals with certain traits to breed. A Scottish sheepherder might breed for a woollier sheep to enhance its chances of survival in a cold northern climate (or to harvest more wool). To do so, he would choose only the woolliest males and woolliest ewes to breed. If, generation after generation, he continued to select and breed only the woolliest sheep among the resulting offspring, he would eventually produce a woollier breed of sheep—a breed *better adapted* to its environment. In such cases, "the key is man's power of accumulative selection," wrote Darwin. "Nature gives successive variations; man adds them up in certain directions useful to him."[6]

But, as Darwin pointed out, nature also has a means of sifting: defective creatures are less likely to survive and reproduce, while those offspring with beneficial variations are more likely to survive, reproduce, and pass on their advantages to future generations. In the *Origin*, Darwin argued that this process—natural selection acting on random variations—could alter the features of organisms just as intelligent selection by human breeders can. Nature itself could play the role of the breeder and, thus, eliminate the need for an actual designing intelligence to produce the complex adaptations that living organisms manifest.

5. Richard Dawkins, *The Blind Watchmaker: Why the Evidence of Evolution Reveals a Universe without Design* (New York: Norton, 1986), 1.
6. Darwin, *On the Origin of Species*, 30.

Consider once more our flock of sheep. Imagine that instead of a human selecting the woolliest males and ewes to breed, a series of very cold winters ensures that all but the woolliest sheep in a population die off. Now, again, only very woolly sheep will remain to breed. If the cold winters continue over several generations, will the result not be the same as before? Won't the population of sheep eventually become discernibly woollier?

This was Darwin's great insight. Nature—in the form of environmental changes or other factors—could have the same effect on a population of organisms as the intentional decisions of an intelligent agent. Nature would favor the preservation of certain features over others—those that conferred a functional or survival advantage upon the organisms possessing them—causing the features of the population to change. The resulting change or increase in fitness (adaptation) will have been produced not by an intelligent breeder choosing a desirable trait or variation—not by "artificial selection"—but by a wholly natural process. As Darwin himself insisted, "There seems to be no more design in the variability of organic beings and in the action of natural selection, than in the course in which the wind blows."[7]

Or as the eminent evolutionary biologist Francisco Ayala has argued, Darwin accounted for "design without a designer," since "It was Darwin's greatest accomplishment to show that the directive organization of living beings can be explained as the result of a natural process, natural selection, without any need to resort to a Creator or other external agent."[8]

Indeed, since 1859 most evolutionary biologists have understood the appearance of design in living things as an illusion—a powerfully suggestive one, but an illusion nonetheless. For this reason, as briefly noted above, Richard Dawkins insists in *The Blind Watchmaker* that "biology is the study of complicated things that give the appearance of having been designed for a purpose."[9] Or as Ernst Mayr explained, "The real core of Darwinism . . . is the theory of natural selection.

7. Charles Darwin, *The Life and Letters of Charles Darwin*, ed. Francis Darwin, vol. 1 (London: John Murray, 1887), 278–279.

8. Francisco J. Ayala, "Darwin's Greatest Discovery: Design without Designer," *Proceedings of the National Academy of Sciences USA* 104 (May 15, 2007): 8567–8573.

9. Dawkins, *Blind Watchmaker*, 1.

This theory is so important for the Darwinian because it permits the explanation of adaptation, the 'design' of the natural theologian, by natural means, instead of by divine intervention."[10] Or as Francis Crick mused, biologists must "constantly keep in mind that what they see was not designed, but rather evolved."[11] Likewise George Gaylord Simpson, one of the architects of neo-Darwinism, in *The Meaning of Evolution*, wrote that neo-Darwinism implies that "man is the result of a purposeless and natural process that did not have him in mind."[12]

But if apparent design is an illusion—if it is *just* an appearance—as both Darwinists and modern neo-Darwinists have argued, then it follows that whatever mechanism produced that appearance must be wholly unguided and undirected. For this reason, the third meaning of *evolution*—the definition that affirms the creative power of the natural selection/random mutation mechanism and denies evidence of actual design in living systems—raises a significant issue for any proponent of *theistic* evolution who affirms this meaning of evolution.

Assessing Different Concepts of Theistic Evolution (or Evolutionary Creation)

The three different meanings of evolution discussed above correspond to three possible and distinct concepts of theistic evolution, one of which is trivial, one of which is contestable but not incoherent, and one of which appears deeply problematic. In the last case, special attention is due to the important issue of whether theistic evolutionists regard the evolutionary process as guided or unguided.

If by "evolution" the theistic evolutionist means to affirm evolution in the first sense—change over time—and if, further, the theistic evolutionist affirms that God has caused that "change over time," then certainly no theist would contest the theological orthodoxy or logical coherence of such a statement. If a personal God of the kind affirmed by biblical Judaism or Christianity exists, then there is nothing logically

10. Ernst Mayr, Foreword in Michael Ruse, *Darwinism Defended: A Guide to the Evolution Controversies* (Reading, MA: Addison-Wesley, 1982), xi–xii.

11. Francis Crick, *What Mad Pursuit: A Personal View of Scientific Discovery* (New York: Basic Books, 1988), 138.

12. George Gaylord Simpson, *The Meaning of Evolution*, rev. ed. (New Haven, CT: Yale University Press, 1967), 345.

contradictory in such a statement, nor does it contradict any specific theological tenets. The Jewish and Christian scriptures clearly affirm that God has caused change over time, not only in human history but also in the process of creating the world and different forms of life.

Given the extensive scientific evidence showing that the representation of life forms on Earth has changed over time, there does not seem to be any significant theological or scientific basis for questioning evolution, or theistic evolution, where evolution is defined in this minimal sense. Similarly, since God could create different organisms with a built-in capacity to change or "evolve" *within limits* without denying his design of different living systems as distinct forms of life, and since there is extensive scientific evidence for change of this kind occurring, there does not seem to be any significant scientific or theological basis for questioning evolution in this sense either. Understanding theistic evolution this way seems unobjectionable, perhaps even trivial.

Another conception of theistic evolution affirms the second meaning of evolution. It affirms the view that God has caused *continuous* and *gradual* biological change such that the history of life is best represented by a great branching tree pattern as Darwin argued. Theistic evolution thus conceived is, again, not obviously logically incoherent since God as conceived by theists, including biblical theists, is certainly capable of producing continuous and gradual change.

Nevertheless, some biblical theists question universal common descent based on their interpretation of the biblical teaching in Genesis about God creating distinct "kinds" of plants and animals, all of which "reproduce after their own kind." Those who think a natural reading of the Genesis account suggests that different kinds of plants and animals reproduce only after their own kind and do not vary beyond some fixed limit in their morphology, question the theory of universal common descent on biblical grounds. Some biblical theists likewise question that humans and lower animals share a common ancestry, believing instead that the biblical account affirms that humans arose from a special creative act, thus excluding the idea that humans originated from nonhuman ancestors.

In addition to these theological objections, there is a growing body of *scientific* evidence and peer-reviewed literature challenging such a

"monophyletic" picture of the history of life.[13] These scientific challenges to the theory of universal common descent are reviewed in chapters 10–12 of this volume. Chapters 13–16 of this volume also discuss scientific evidence that challenges the idea that humans and chimps in particular share a common ancestor.[14]

An even more foundational issue arises when considering the *cause* of biological change and the question of whether theistic evolutionists conceive of evolutionary mechanisms as directed or undirected processes.

Some proponents of theistic evolution openly affirm that the evolutionary process is an unguided, undirected process. Kenneth Miller, a leading theistic evolutionist and author of *Finding Darwin's God* has repeatedly stated in editions of his popular textbook that "evolution works without either plan or purpose. . . . Evolution is random and undirected."[15]

Nevertheless, most theistic evolutionists, including geneticist Francis Collins, perhaps the world's best-known proponent of the position, have been reluctant to clarify what they think about this important issue. In his book *The Language of God*, Collins makes clear his support for universal common descent. He also seems to assume the adequacy of standard evolutionary mechanisms but does not clearly say whether he thinks those mechanisms are directed or undirected—only that they "could be" directed.

In any case, where theistic evolution is understood to affirm the creative power of the neo-Darwinian and/or other evolutionary mecha-

13. See, e.g., Michael Syvanen, "Evolutionary Implications of Horizontal Gene Transfer," *Annual Review of Genetics* 46 (2012): 339–356; W. Ford Doolittle, "The Practice of Classification and the Theory of Evolution, and What the Demise of Charles Darwin's Tree of Life Hypothesis Means for Both of Them," *Philosophical Transactions of the Royal Society B* 364 (2009): 2221–2228; Malcolm S. Gordon, "The Concept of Monophyly: A Speculative Essay," *Biology and Philosophy* 14 (1999): 331–348; Eugene V. Koonin, "The Biological Big Bang Model for the Major Transitions in Evolution," *Biology Direct* 2 (2007): 21; Vicky Merhej and Didier Raoult, "Rhizome of Life, Catastrophes, Sequence Exchanges, Gene Creations, and Giant Viruses: How Microbial Genomics Challenges Darwin," *Frontiers in Cellular and Infection Microbiology* 2 (August 28, 2012): 113; Didier Raoult, "The Post-Darwinist Rhizome of Life," *The Lancet* 375 (January 9, 2010): 104–105; Carl R. Woese, "On the Evolution of Cells," *Proceedings of the U.S. National Academy of Sciences* 99 (June 25, 2002): 8742–8747; Graham Lawton, "Why Darwin Was Wrong about the Tree of Life," *New Scientist* (January 21, 2009): 34–39; Stephen C. Meyer, Paul A. Nelson, Jonathan Moneymaker, Ralph Seelke, and Scott Minnich, *Explore Evolution: The Arguments for and against Neo-Darwinism* (London: Hill House, 2007).

14. See also: Ann Gauger, Douglas Axe, and Casey Luskin, *Science and Human Origins* (Seattle: Discovery Institute Press, 2012).

15. Kenneth R. Miller and Joseph S. Levine, *Biology* (Upper Saddle River, NJ: Prentice Hall: 1998), 658.

nisms and to deny actual, as opposed to apparent, design in living organisms—i.e., the third meaning of evolution discussed above—the concept becomes deeply problematic. Indeed, depending on how this particular understanding of theistic evolution is articulated, it generates either (1) logical contradictions, (2) a theologically heterodox view of divine action, or (3) a convoluted and scientifically vacuous explanation. In addition to this dilemma (or rather "*tri*-lemma"), a huge body of scientific evidence now challenges the creative power of the mutation/selection mechanism, especially with respect to some of the most striking appearances of design in biological systems. Let's examine each of these difficulties in more detail.

A Logically Contradictory View

In the first place, some formulations of theistic evolution that affirm the third meaning of evolution result in logical contradictions. For example, if the theistic evolutionist means to affirm the standard neo-Darwinian view of the natural selection/mutation mechanism as an *un*directed process while simultaneously affirming that God is still *causally responsible* for the origin of new forms of life, then the theistic evolutionist implies that God somehow guided or directed an unguided and undirected process. Logically, no intelligent being—not even God—can direct an undirected process. As soon as he directs it, the "undirected" process would no longer be undirected.

On the other hand, a proponent of theistic evolution may conceive of the natural selection/mutation mechanism as a *directed* process (with God perhaps directing specific mutations). This view represents a decidedly non-Darwinian conception of the evolutionary mechanism. It also constitutes a version of the theory of intelligent design—one that affirms that God intelligently designed organisms by actively directing mutations (or other processes) toward functional endpoints during the history of life. Yet, if living organisms are the result of a directed process, then it follows that the appearance of design in living organisms is real, not merely apparent or illusory. Nevertheless, chief proponents of theistic evolution reject the theory of intelligent design with its claim that the appearance of design in living organisms *is* real. Thus, any proponent of theistic evolution who affirms that God is

directing the evolutionary mechanism, and who also rejects intelligent design, implicitly contradicts himself. (Of course, there is no contradiction in affirming both a God-guided mechanism of evolution and intelligent design, though few theistic evolutionists have publicly taken this view—see Ratzsch, *Nature, Design, and Science* for a notable exception.[16])

Theologically Problematic Views

Other formulations of theistic evolution explicitly *deny* that God is directing or guiding the mutation/selection mechanism, and instead see a much more limited divine role in the process of life's creation. One formulation affirms that God designed the laws of nature at the beginning of the universe to make the origin and development of life possible (or inevitable). This view is scientifically problematic, however, since it can be demonstrated (see chapter 6) that the information necessary to build even a single functional gene (or section of DNA) cannot have been contained in the elementary particles and energy present at the beginning of the universe.[17] Another formulation holds that God created the laws of nature at the beginning of the universe and also affirms that he constantly upholds those laws on a moment-by-moment basis. Nevertheless, both of these understandings of theistic evolution deny that God in any way actively directed the mutation/selection (or other evolutionary) mechanisms. Both formulations conceive of God's role in the *creation* of life (as opposed to the maintenance of physical law) as mainly passive rather than active or directive. In both views, the mechanisms of natural selection and random mutation (and/or other similarly undirected evolutionary mechanisms) are seen as the main causal actor(s) in producing new forms of life. Thus, God does not act directly or "intervene" within the orderly concourse of nature.

Yet, this view is arguably theologically problematic, at least for orthodox Jews and Christians who derive their understanding of divine action from the biblical text. This is easy to see in the first of

16. Del Ratzsch, *Nature, Design, and Science* (Albany, NY: SUNY Press, 2001)

17. Stephen C. Meyer, "The Difference It Doesn't Make," in *God and Evolution: Protestants, Catholics, and Jews Explore Darwin's Challenge to Faith*, ed. Jay Wesley Richards (Seattle: Discovery Institute Press, 2010), 147–164.

these two formulations, where God's activity is confined to an act of creation or design at the very beginning of the universe. Such a front-end loaded view of design is, of course, a logically possible view, but it is indistinguishable from deism. It, therefore, contradicts the plainly *theistic* view of divine action articulated in the Bible, where God acts in his creation after the beginning of the universe. Indeed, the Bible describes God as not only acting to create the universe in the beginning; it also describes him as presently upholding the universe in its orderly concourse *and* also describes him *as acting discretely as an agent within the natural order*. (See, for example, Gen. 1:27, "God created [*bara*] man"; Ex. 10:13 [NLT], "and the Lord *caused* an east wind to blow.")

The version of theistic evolution that affirms that God created *and* upholds the laws of nature, but does not actively direct the creation of life, is also theologically problematic—at least for those who profess a biblical understanding of God's nature and powers. If God is not at least directing the evolutionary process, then the origin of biological systems must be attributed, in some part, to nature acting independently of God's direction. This entails a diminished view of God's involvement in creation and divine sovereignty at odds with most traditional readings of the Bible (whether Jewish or Christian).[18] Indeed, if God did not at least direct the process of mutation and selection (and/or other relevant evolutionary mechanisms), but instead merely sustained the laws of nature that made them possible, then it follows that he could not know, and does not know, what those mechanisms would (or will) produce, including whether they would have produced human beings. Accordingly, many theistic evolutionists who embrace this view have insisted that the evolutionary process might just as well have produced "a big-brained dinosaur" as opposed to a big-brained bipedal hominid—i.e., human beings.[19] Since, in this view, nature has

18. Traditionally, theologians have understood the Bible to affirm the sovereignty of God and the absolute dependence of his creation upon him, not only for its ongoing existence (as in, "in him all things hold together"; see Col. 1:17) but also for its origin in the first place (as in, "Through him all things were made; without him nothing was made that has been made"; John 1:3 [NIV]).

19. Kenneth Miller, *Finding Darwin's God: A Scientist's Search for Common Ground between God and Evolution* (New York: HarperCollins, 1999); Miller, comments during "Evolution and Intelligent Design: An Exchange," at "Shifting Ground: Religion and Civic Life in America" conference, Bedford, New Hampshire, sponsored by the New Hampshire Humanities Council, March 24,

significant autonomy from God, and since God does not direct or control the evolutionary process, he cannot know what it will produce—a conclusion at odds with God's omniscience and providence. Similarly, since God does not direct the evolutionary process, what it produces cannot be said to express his specific intentions in creation—a conclusion that also stands at odds with the biblical claim that God made man expressly in his own image and "foreknew" him.

A Convoluted (and Scientifically Vacuous) Explanation

Perhaps because evangelical Christian advocates of theistic evolution have not wanted to embrace either the logical or the theological problems associated with affirming the third meaning of evolution, they have typically declined to specify whether they think the natural selection/random mutation mechanism is a directed or an undirected process. Instead, many affirm a scientifically convoluted and vacuous formulation of theistic evolution—at least insofar as it stands as an explanation for the appearance of design in living organisms.

Recall that from Darwin to the present, leading evolutionary biologists have acknowledged the appearance of design in living organisms and have sought to explain its origin. Darwinists and neo-Darwinists have sought to explain this appearance of design as the result of an undirected and unguided mechanism (natural selection acting on random variations or mutations) that can mimic the powers of a designing intelligence. Theistic evolutionists who affirm the creative power of this (and, perhaps, other related) evolutionary mechanism(s) have been loath to argue that God actively directed the evolutionary process in any discernible way. That, of course, would constitute a form of intelligent design, and most theistic evolutionists reject this idea outright.

Francis Collins, for example, has explicitly rejected the theory of intelligent design. Yet, the theory of intelligent design does not necessarily reject evolution in either of the first two senses above, but instead argues that key appearances of design in living organisms are real, not illusory. In rejecting the theory of intelligent design, Collins would,

2007; see also John G. West, "Nothing New under the Sun," in *God and Evolution: Protestants, Catholics, and Jews Explore Darwin's Challenge to Faith*, 40–45.

therefore, seem to be affirming the contrary, namely, that the appearance of design is not real but just an appearance.

He thus seems to commit himself to the position that the process that produced the appearance of design in living organisms is undirected. That would follow because, again, if it were otherwise—if the process were directed or guided—then the appearance of design in living organisms would be real and not *just* apparent.

Yet, in *The Language of God*, Collins does not specify whether the evolutionary process is directed or not, only that it "could be" directed. As he explains, "evolution could appear to us to be driven by chance, but from God's perspective the outcome would be entirely specified. Thus, God *could be* completely and intimately involved in the creation of all species, while from our perspective . . . this would appear a random and undirected process" (emphasis added).[20]

That God could have acted in such a concealed way is, of course, a logical possibility, but positing such a view, nevertheless, entails difficulties that proponents of theistic evolution rarely address.

First, this version of theistic evolution suggests a logically convoluted explanation for the appearance of design in living systems. Like classical Darwinism and neo-Darwinism, this version of theistic evolution denies that anything about living systems indicates that an actual designing intelligence played a role in their origin. Why? Theistic evolutionists, like mainstream neo-Darwinists, affirm the third meaning of evolution—i.e., the sufficiency of the natural selection/mutation mechanism (possibly in conjunction with other similarly naturalistic evolutionary mechanisms) as an explanation for the origin of new forms and features of life. Since natural selection and random mutations can account for the origin of biological systems (and their appearances of design), theistic evolutionists steadfastly deny the need to propose an actual designing intelligence.

Yet, having affirmed what classical Darwinists and neo-Darwinists affirm—namely, the sufficiency of standard evolutionary mechanisms—they then suggest that such mechanisms may only *appear* undirected and unguided. Francis Collins suggests that "from our perspective" mutation and selection "would appear a random and undirected pro-

20. Francis Collins, *The Language of God: A Scientist Presents Evidence for Belief* (New York: Free Press, 2006), 205.

cess." Thus, his formulation implies that the *appearance or illusion of design* in living systems results from the activity of an *apparently undirected* material process (i.e., classical and neo- Darwinism) except that this apparently undirected process is itself being used by a designing intelligence—or at least it *could* be, though no one can tell for sure. Or, to put it another way, we have moved from Richard Dawkins's famous statement that "biology is the study of complicated things that give the appearance of having been designed for a purpose"[21] to the proposition that "biology is the study of complicated things that give the appearance of having been designed for a purpose, though that appearance of design is an illusion (classical Darwinism), even though there may be an intelligent designer behind it all—in which case that appearance wouldn't be an illusion after all."

This tangled—indeed, convoluted—view of the origin of living systems adds nothing to our scientific understanding of what caused living organisms to arise. As such, it also represents an entirely vacuous explanation. Indeed, it has no empirical or scientific content beyond that offered by strictly materialistic evolutionary theories. It tells us nothing about God's role in the evolutionary process or even whether or not he had a role at all. It, thus, renders the modifier "theistic" in the term "theistic evolution" superfluous. It does not represent an alternative theory of biological origins, but a reaffirmation of some materialistic version of evolutionary theory restated using theological terminology.

Of course, theistic evolutionists who hold this view do not typically spell out its implications so as to reveal the convoluted nature of the explanation for the appearance of design that their view entails. Instead, they typically avoid discussing, or offering explanations for, the appearance of design in living systems altogether—though this appearance is so striking that even secular evolutionary biologists have long and consistently acknowledged it.[22]

Theistic evolutionists such as Collins also deny what advocates of intelligent design affirm, namely, that the past activity of a designing intelligence, including God's intelligence, is *detectable* or discernible in living systems. Yet, denying the detectability of design in nature gen-

21. Dawkins, *Blind Watchmaker*, 1.
22. Ibid.; Crick, *What Mad Pursuit*, 138.

erates another theological difficulty. In particular, this view seems to contradict what the biblical record affirms about the natural world (or "the things that are made") revealing the reality of God and his "invisible qualities" such as his power, glory, divine nature and wisdom. As John West has explained,

> [Francis Collins' version of theistic evolution] still seriously conflicts with the Biblical understanding of God and His general revelation. Both the Old and New Testaments clearly teach that human beings can recognize God's handiwork in nature through their own observations rather than [through] special divine revelation. From the psalmist who proclaimed that the "heavens declare the glory of God" (Psalm 19) to the Apostle Paul who argued in Rom. 1:20 that "since the creation of the world His invisible attributes are clearly seen, being understood by the things that are made," the idea that we can see design in nature was clearly taught. Jesus himself pointed to the feeding of birds, the rain and the sun, and the exquisite design of the lilies of the field as observable evidence of God's active care towards the world and its inhabitants (Matt. 5:44-45, 48; 6:26-30). . . . to head off a direct collision between undirected Darwinism and the doctrine of God's sovereignty, Collins seems to depict God as a cosmic trickster who misleads people into thinking that the process by which they were produced was blind and purposeless, even when it wasn't.[23]

This Book: A Critique of Two Key Meanings of Theistic Evolution

In the chapters that follow we will provide a much more extensive critique of theistic evolution in three distinct sections of this book. Our three sections will not correspond to the three different meanings of the term evolution, but rather to three distinct disciplinary sets of concerns: scientific, philosophical, and theological. In each section of the book, however, our authors will carefully define the specific formulation of theistic evolution they are critiquing.

In the first section we provide a *scientific* critique of theistic evolution. But neither in this section, nor in any other, do we critique theistic

23. West, "Nothing New under the Sun," 46–47.

evolution where evolution is defined as meaning merely "change over time." Instead, our scientific critique will focus first on the version of theistic evolution that affirms the sufficiency (or creative power) of the mechanism of mutation and natural selection as an explanation for the origin of new forms of life (and the appearances of design that they manifest). The first group of essays (chapters 1–9) will show that the versions of theistic evolution that affirm the creative power of the natural selection/random mutation mechanism (as well as other purely materialistic evolutionary mechanisms) are now contradicted by a wealth of scientific evidence from an array of biological subdisciplines, including molecular biology, protein science, paleontology, and developmental biology.

We start our scientific critique of theistic evolution discussing the alleged creative power of the main mechanisms of evolutionary change because theistic evolutionists want to argue that God has worked undetectably through these various evolutionary mechanisms and processes to produce all the forms of life on our planet today. They equate and identify evolutionary processes such as natural selection and random mutation with the creative work of God. Yet, we will argue in the opening section of this book, chapters 1–9, that the main mechanisms postulated in both biological and chemical evolutionary theory lack the creative power necessary to produce genuine biological innovation and morphological novelty.

In chapter 1, Douglas Axe argues that people do not need specialized scientific training to recognize the implausibility of Darwinian (or other materialistic) explanations for the origin of living forms—though he also argues that rigorous scientific analysis reinforces our intuitive conviction that the integrated complexity of living systems could not have arisen by accidental or undirected processes. Consequently, he suggests that people of faith who yield core convictions about the intelligent design of life—out of deference to the supposed scientific authority of spokesmen for Darwinism—do so unnecessarily and with a substantial apologetic cost to their faith.

In chapter 2, I (Stephen Meyer) follow up on Axe's argument by showing that a rigorous scientific and mathematical analysis of the neo-Darwinian process does, indeed, reinforce the pervasive intuition

to which Axe appeals. I show, based in part on some of Axe's own experimental work, that the random mutation and natural selection mechanism lacks the creative power to generate the new genetic information necessary to produce new proteins and forms of life.

In chapter 3, Matti Leisola extends our critique of the sufficiency of the neo-Darwinian mechanism. He shows, citing some of his own experimental work on DNA and proteins, that random mutational processes produce only extremely limited changes, even with the help of natural selection.

In chapter 4, we briefly shift our focus from biological evolution to chemical evolution, the branch of evolutionary theory that attempts to explain the origin of the first life from simpler nonliving chemicals. In this chapter, organic chemist James Tour shows that undirected *chemical* evolutionary processes and mechanisms have not demonstrated the creative power to generate the first living cell from simpler molecules. Basing his argument on his extensive knowledge of what it takes to synthesize organic compounds, Tour shows why known chemical processes do not provide plausible mechanisms for the synthesis of the complex bio-macromolecules and molecular machines necessary for life. We should make clear, in introducing his chapter, that Tour does not regard himself as a partisan to the debate over theistic evolution, one way or another. He has, nevertheless, kindly given us permission to publish an abridged version of a previously published essay in order to make more widely known the scientific problems associated with chemical evolutionary theory—in particular, its lack of any demonstrated mechanism for generating the molecular machinery necessary to the first life.

In chapter 5, Winston Ewert shows that attempts to solve the problem of the origin of biological information by simulating the evolutionary process in a computer environment have also failed. Instead, he shows that, to the extent that well-known evolutionary algorithms (computer programs) simulate the production of new genetic information, they do so as a consequence of information already provided to the program by the intelligent programmer who wrote the code—thus simulating, if anything, the need for intelligent design, not the sufficiency of an undirected evolutionary processes.

In chapter 6, I critique the idea that God carefully arranged matter at the beginning of the universe so as to ensure that life would inevitably evolve without any additional intelligent input or activity. In this chapter, I show why this version of theistic evolution, though attractive as a potential synthesis of the ideas of creation and evolution, fails for demonstrable scientific reasons to account for the origin of the information in the DNA molecule—and, thus, the information needed to produce the first life.

Next, in chapter 7, Jonathan Wells shows that, in addition to new genetic information, building new organisms requires information not stored in DNA—what is called "epigenetic" (or "ontogenetic") information. He argues that this fact alone demonstrates the inadequacy of the neo-Darwinian mechanism. Whereas neo-Darwinism asserts that all the new information necessary to build new forms of life arises as the result of random mutational changes in DNA, developmental biology has shown instead that building new forms of life also depends on information not stored in the DNA molecule. For this reason, the "gene-centric" mutation and natural selection mechanism simply cannot explain the origin of anatomical novelty.

In chapter 8, I team up with Ann Gauger and Paul Nelson to show that many mainstream evolutionary biologists have now rejected orthodox neo-Darwinian evolutionary theory precisely because they recognize that the mutation/natural selection mechanism lacks the creative power to generate novel biological form. In support of this claim, we describe some of the new theories of evolution (and evolutionary mechanisms) that mainstream evolutionary biologists are now proposing as alternatives to textbook neo-Darwinism. Yet we also show that none of these new evolutionary theories invoke mechanisms with the power to produce either the genetic or the epigenetic information necessary to generate novel forms of life.

In chapter 9, Sheena Tyler describes the exquisite orchestration necessary for the development of animals from embryo to adult form. She argues that nothing about these carefully choreographed processes suggests that they might have originated as the result of random mutational tinkering or other undirected processes. Instead, she argues that they exhibit hallmarks of design.

For advocates of theistic evolution (where evolution is understood to affirm the third meaning of evolution), the growing scientific skepticism about the adequacy of the neo-Darwinian and other evolutionary mechanisms presents an acute problem, quite apart from the logical and theological considerations outlined above. If many evolutionary biologists themselves no longer agree that the mutation/selection mechanism has the creative power to explain novel biological forms, and if no alternative evolutionary mechanism has yet demonstrated that power either, then the claim that apparently unguided evolutionary processes are God's way of creating new forms of life is, increasingly, a relic of an obsolete scientific viewpoint. But that raises a question: if the evidence doesn't support the creative power of evolutionary mechanisms, why claim that these mechanisms represent the means by which God created? Why attempt to synthesize mainstream evolutionary theory with a theistic understanding of creation?

After critiquing versions of theistic evolution that affirm the sufficiency of various naturalistic evolutionary mechanisms, the second part of the science section of the book (chapters 10–17) critiques versions of theistic evolution that assume the truth of universal common descent, the second meaning of evolution discussed above. These chapters also take a critical look at the claims of evolutionary anthropologists who assert that human beings and chimpanzees have evolved from a common ancestor.

In chapter 10, paleontologist Günter Bechley and I examine the logical structure of argument for universal common descent, with a particular focus on what the fossil record can tell us about whether all forms of life do, or do not, share a common ancestor. Though theistic evolutionists often portray this part of evolutionary theory as a fact, even as they may acknowledge doubts about the creative power of the neo-Darwinian mechanism, we have become skeptical about universal common descent. In this chapter we explain why, and use the fossil evidence to illustrate how a scientifically informed person might reasonably come to doubt the arguments for universal common ancestry.

Then in chapter 11, Casey Luskin shows that a wealth of evidence from several different subdisciplines of biology, not just paleontology,

now challenges this universal common descent and the "monophyletic" picture of the history of life it presents.

In chapter 12, Paul Nelson argues that the theory of universal common descent rests less upon supporting evidence than upon a number of questionable scientific and philosophical assumptions. He argues that the theory of universal common descent has been insulated from critical testing largely because these assumptions have rarely been questioned.

In this same section of the book, we also offer several chapters challenging the idea that chimpanzees and humans, in particular, share a common ancestor. Chapter 13, by Ann Gauger, explains what is at stake in the debate about human origins. Chapter 14, by Casey Luskin, shows that the fossil record does not support the evolutionary story about the origin of human beings. Chapter 15, by Ann Gauger, Ola Hössjer, and Colin Reeves, shows that the genetic uniqueness of human beings contradicts that story as well. Chapter 16, also by Gauger, Hössjer, and Reeves, challenges theistic evolutionists who claim that evolutionary theory and its subdiscipline of population genetics have rendered untenable any belief in an original male and female pair as the parents of the entire human race.

Finally, in chapter 17 Christopher Shaw, one of the science editors of this volume, concludes this section of the book with an interesting article on the role of bias in science that helps shed light on why so many scientists have found neo-Darwinian evolutionary theory persuasive despite its evident empirical difficulties.

Our critique of theistic evolution does not stop with scientific concerns, however. In the second section of the book, we address philosophical problems with the versions of theistic evolution critiqued in our science section. Given the known scientific inadequacy of the neo-Darwinian mutation/natural selection mechanism, and the absence of any alternative evolutionary mechanism with sufficient creative power to explain the origin of major innovations in biological form and information, we argue that theistic evolution devolves into little more than an *a priori* commitment to methodological naturalism—the idea that scientists must limit themselves to strictly materialistic explanations and that scientists may not offer explanations making reference

to intelligent design or divine action, or make any reference to theology in scientific discourse.

In chapter 18, J. P. Moreland notes that, for good or ill, philosophical assumptions necessarily influence the practice of science. He argues that science and scientists, therefore, need philosophy, but also need to be more self-critical about the philosophical assumptions that they accept, lest they adopt assumptions that impede scientists in their search for the truth about the natural world.

In chapter 19, Paul Nelson and I critique the principle of methodological naturalism and also critique how theistic evolutionists invoke this methodological convention to justify their commitment to contemporary evolutionary theory despite its evident empirical shortcomings. Methodological naturalism asserts that, to qualify as scientific, a theory must explain all phenomena by reference to purely physical or material—that is, non-intelligent or non-purposive—causes or processes. We show that, though many scientists adhere to this rule, attempts to justify methodological naturalism as a rule for how science *should* function have failed within the philosophy of science. In this chapter we also critique the way theistic evolutionists invoke the God-of-the-gaps objection to reject all nonmaterialistic explanations for the origin of new forms or features of life—that is, we critique the use of this objection as a way of justifying methodological naturalism. Most importantly, we show how methodological naturalism impedes the truth-seeking function of scientific investigations of biological origins, and should, for that reason alone, be jettisoned.

In chapter 20, Stephen Dilley argues that a logically consistent theistic evolutionist should reject methodological naturalism. Dilley notes that methodological naturalism prohibits the use of theology-laden claims and that it denies that non-naturalistic theories (such as intelligent design or creationism) are "scientific." Yet, he argues, key scientific arguments for evolutionary theory—from the *Origin* to the present—either rely on theology-laden claims or attempt to provide evidence-based refutations of non-naturalistic theories—thereby, inadvertently implying that such theories do make scientific claims.

In chapter 21, J. P. Moreland argues that adopting theistic evolution undermines the rational plausibility of Christianity. By assuming

that only scientific methods and evidence produce knowledge, and that theological and biblical teaching do not, theistic evolutionists propagate a form of scientism that forces theists to constantly revise biblical truth claims in light of the latest scientific findings or theories—however unsubstantiated, provisional, or speculative they may be. In so doing, theistic evolutionists undermine Christian confidence in the teachings of Scripture and contribute to disdain or contempt for Christian truth claims among nonbelievers.

In chapter 22, Jack Collins lays out the biblical understanding of how God works in the natural world, explaining the Bible's implicit and explicit theology of nature (its "metaphysic"). He also explains how the biblical writers, and biblically based theologians, conceive of such terms or concepts as "nature," "miracle," "science," and "design." He argues that a careful consideration of a biblical view of divine action (and interaction with nature) establishes criteria for discerning miraculous events without downplaying God's role in all natural events, and without committing the God-of-the-gaps fallacy. He shows that, whereas the theory of intelligent design is fully compatible with this biblical view of how God interacts with nature, theistic evolution is not.

In chapter 23, Garrett DeWeese points out that moral evil, caused by free moral agents, and natural evil, caused by impersonal forces in the environment, are both used as evidence against the existence of God. He argues that adopting theistic evolution makes answering these objections to Christian belief immeasurably more difficult. It does so, he explains, in the case of natural evil because theistic evolution cannot distinguish between God's original (good) acts of creation and the ongoing or current natural processes. Instead, theistic evolutionists regard the natural processes we currently observe as the means by which God created. Thus, insofar as those processes cause harm to human beings—whether through destructive mutations or through such things as earthquakes or hurricanes—theistic evolutionists must maintain that God is responsible for such "natural evil." By contrast, creationists acknowledge a distinction between God's original good acts of creation and current processes of nature that may have been affected by the acts of sinful moral agents. This distinction, DeWeese argues, allows for coherent explanations of the existence of natural evil

that does not impugn God's goodness. DeWeese offers one explanation that he favors.

In chapter 24, Colin Reeves examines the so-called "complementary" model for the interaction of science and Scripture, commonly assumed by those who promote "theistic evolution." This view of the relationship between scientific and biblical truth claims has led many theistic evolutionists to accept evolutionary claims about human origins uncritically. They do this, Reeves argues, because they assume that all scientific claims can be made "complementary" to biblical truth claims since the two different types of claims describe reality in two fundamentally different nonintersecting (though complementary) ways. Reeves argues that the complementarity model in effect sanctions doctrinal revisionism because in practice it demands the subordination of scriptural claims to scientific claims—in contrast to the Reformation emphasis on the primacy, authority, and clarity of Scripture, an emphasis that actually played a key role in the development of modern science.

In chapter 25, Tapio Puolimatka argues that current evolutionary accounts fail to explain the origin of moral conscience. He explains why the human capacity to discern moral truths cannot be reduced to merely a product of a random search through a vast set of combinatorial possibilities—in other words, a search of the sort that random mutation and natural selection allegedly can accomplish. Although theistic evolutionists assume that the idea of moral conscience as an expression of God's design for humans is fully compatible with various naturalistic causal stories about the origin of the conscience, they fail to specify a natural process that could plausibly explain its origin.

In chapter 26, John West examines how C. S. Lewis, the beloved Christian author and former tutor and "reader" in philosophy at Oxford University, viewed the theory of evolution. Though many theistic evolutionists claim him as an authoritative proponent of their view, West shows—based on original archival research as well as a careful reading of key Lewis books and essays—that he was far more skeptical of Darwinian evolution than current apologists for theistic evolution claim.

In the final section of the book, we examine specifically theological and biblical difficulties associated with those versions of theistic evolu-

tion that affirm either universal common descent, the adequacy or creative power of the mutation/selection mechanism, or both—where the two notions of evolution affirmed jointly are sometimes simply referred to as "macroevolution." Wayne Grudem, the theological editor of this volume, will introduce these chapters in his "Biblical and Theological Introduction," which follows.

In summary, just as there are different meanings of the term evolution, there can be different concepts of theistic evolution. In the chapters that follow we highlight the versions of theistic evolution that the authors of this book regard as problematic or untenable. We highlight several different types of difficulties—scientific, philosophical and theological—facing the most problematic formulations of theistic evolution, and focus on the tensions that arise as theistic evolutionists attempt to reconcile an essentially materialistic theory of biological origins with a theistic understanding of creation.

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Many prominent Christians insist that the church must yield to an unassailable scientific consensus in favor of contemporary evolutionary theory and modify traditional biblical ideas about the creation of life accordingly. They argue that God used—albeit in an undetectable way—evolutionary mechanisms to produce all forms of life. Featuring two-dozen highly credentialed scientists, philosophers, and theologians from Europe and North America, this volume contests this proposal, documenting evidential, logical, and theological problems with theistic evolution—making it the most comprehensive critique of theistic evolution yet produced.

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. . . . . .

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