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978-0-521-19383-2 - Evolution and Belief: Confessions of a Religious Paleontologist

Robert J. Asher

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EVOLUTION AND BELIEF

Confessions of a Religious Paleontologist

Can a scientist believe in God? Does the war of words between some evolutionists and evangelicals show that the two sides are irreconcilable?

As a paleontologist and a religious believer, Robert Asher constantly confronts the perceived conflict between his occupation and his faith. In the course of his scientific work, he has found that no other theory comes close to Darwin's as an explanation for our world's incredible biodiversity.

Recounting discoveries in molecular biology, paleontology, and development, Asher reveals the remarkable evidence in favor of Darwinian evolution. In outlining the scope of Darwin's idea, Asher shows how evolution concerns the cause of biodiversity, rather than the agency behind it. He draws a line between superstition and religion, recognizing that atheism is not the inevitable conclusion of evolutionary theory. By liberating evolution from its misappropriated religious implications, Asher promotes a balanced awareness that contributes to our understanding of biology and Earth history.

ROBERT J. ASHER is a vertebrate paleontologist, specializing in mammals. After finishing his Ph.D. from Stony Brook University in 2000, he studied paleobiology at the American Museum of Natural History, the Berlin Museum of Natural History, and since 2006 has been the Curator of Vertebrates in the Museum of Zoology, Cambridge. Over the past two decades, his work in paleobiology has taken him to Argentina, Britain, Canada, Kenya, Madagascar, Mongolia, South Africa, Spain, western USA, and Venezuela.

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Frontmatter

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Frontmatter

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Department of Zoology, University of Cambridge



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Frontmatter
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Frontmatter

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To the memory of Charles A. Lockwood (1970–2008)

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Robert J. Asher

Frontmatter

[More information](#)

CONTENTS

<i>Acknowledgments</i>	<i>page xi</i>
<i>Prologue</i>	xiii
One: Science and Religion	I
<i>Darwinism, Agency, and Cause</i>	3
<i>The Most Gifted Biology Writer of Our Time</i>	8
<i>Methodological Naturalism</i>	14
<i>The Compatibility Delusion</i>	18
<i>Theistic Christianity and Evolution</i>	21
Two: Evolution as a Science	27
<i>Historical Science and Naturalism</i>	28
<i>Uniformitarianism and Intelligent Design</i>	32
<i>Science and Hypothesis Testing</i>	36
<i>Hypotheses Derived from Natural Selection</i>	38
Three: Characters and Common Descent	42
<i>Evolutionary Trees</i>	43
<i>Living “Intermediates”</i>	45
<i>Reproduction on Land and in Water</i>	47
<i>Amphibians and the Puerto Rican Coqui</i>	48

viii | CONTENTS

<i>Mammals and Monotremes</i>	50
<i>Marsupials and Bandicoots</i>	54
<i>The Marsupial Placenta</i>	56
<i>Tarsiers</i>	59
<i>Summary</i>	62
Four: The Fossil Record	63
<i>Stratigraphy</i>	66
<i>Micro- and Macroevolution</i>	71
<i>Punctuated Equilibrium</i>	73
<i>Creationists and Quote-mining</i>	77
<i>Stephen Jay Gould and Neo-Darwinism</i>	80
<i>“Macroevolution”: Species as Individuals</i>	85
Five: The Roots of Mammals	89
<i>Synapsid Jaw and Ear Bones</i>	93
<i>Ear Bones and Development</i>	101
<i>Mammalian Lactation</i>	107
<i>Roots of Mammals: Summary</i>	110
Six: A Brief History of Elephants	112
<i>Elephants and the Big Picture</i>	118
<i>Elephants and English</i>	122
Seven: Whales are no Fluke	125
<i>Cetacean Origins: Molecules and Mesonychids</i>	125
<i>Toothed and Baleen Whales</i>	132
<i>Baleen Whale Development and Genetics</i>	136
Eight: Creationism: the Fossils Still Say No!	140
<i>Agency and Cause Revisited</i>	151
Nine: DNA and the Tree of Life	154
<i>Building Trees with Genes</i>	159
<i>Anti-evolutionists and Trees</i>	166
<i>The Nodes Anatomy got Wrong</i>	170
<i>Afrotheria and the New Tree of Placental Mammals</i>	171
Ten: DNA and Information “Creation”	179
<i>What does DNA do?</i>	184
<i>Pseudogenes</i>	186

Cambridge University Press
978-0-521-19383-2 - Evolution and Belief: Confessions of a Religious Paleontologist
Robert J. Asher
Frontmatter
[More information](#)

CONTENTS | ix

<i>Viral DNA and Function</i>	187
<i>Mutation and Color Vision</i>	188
<i>“Tuning knobs” and Skull Shape</i>	192
<i>Origin of Information and “Macroevolution”</i>	195
<i>Genetics, Development, and the Mammalian Ear</i>	196
Eleven: Biology and Probability	201
<i>Contingency</i>	202
<i>Convergence</i>	205
<i>Evolution is not Random</i>	205
<i>Selection and Stickleback Fish</i>	208
<i>Probability and Anti-evolutionism</i>	213
<i>Exaptation</i>	216
Twelve: Evolution, Education, and Conclusions	220
<i>Academic Freedom</i>	221
<i>What did Darwin Explain?</i>	225
<i>Conclusions</i>	227
Notes	232
Bibliography	269
Index	297

Cambridge University Press
978-0-521-19383-2 - Evolution and Belief: Confessions of a Religious Paleontologist
Robert J. Asher
Frontmatter
[More information](#)

Cambridge University Press

978-0-521-19383-2 - Evolution and Belief: Confessions of a Religious Paleontologist

Robert J. Asher

Frontmatter

[More information](#)

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Cambridge University Press

978-0-521-19383-2 - Evolution and Belief: Confessions of a Religious Paleontologist

Robert J. Asher

Frontmatter

[More information](#)

xii | ACKNOWLEDGMENTS

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Cambridge University Press

978-0-521-19383-2 - Evolution and Belief: Confessions of a Religious Paleontologist

Robert J. Asher

Frontmatter

[More information](#)

PROLOGUE

I believe in God; therefore, I'm religious. My father is Jewish, my mother Christian, and I was raised in a Presbyterian church in western New York state, USA. At present, I often go to Anglican church services (or "Evensong") at various colleges within my university, and the music is excellent. I'm not a fundamentalist or evangelical of any denomination, and I do not believe that every word in the Bible is an unfiltered indication of His Divine Will. However, for all of its human-caused mistakes, I believe the Bible has a lot going for it. It encourages humility and love, and it asks you to recognize your imperfections, put the needs of others ahead of your own, and as a general rule, treat others as you would like to be treated yourself. In my own intuitive, unscientific way, I think this core message is divinely inspired.

I'm also a paleontologist. That is, I'm an academic who studies evolutionary biology for a living, and I'm particularly interested in the fossil record of mammals. This profession has enabled me to observe firsthand just how right Charles Darwin was about how all mammals share a biological history among themselves and with other forms of life on this planet. At no point has this observation led me to a spiritual "crisis," or to the feeling that God and Darwin are somehow antagonistic. It would have if I equated "God" with superstition or a literal reading of Genesis, but I don't. Biblical literalism was nonsense long before Charles Darwin came on the scene.

The subtitle of this book is "confessions of a religious paleontologist." Actually, all I'd like to confess is the fact that I don't see a contradiction

Cambridge University Press

978-0-521-19383-2 - Evolution and Belief: Confessions of a Religious Paleontologist

Robert J. Asher

Frontmatter

[More information](#)

xiv | PROLOGUE

between my profession as an evolutionary scientist and my belief in God. Some of you will disagree. One kind of skeptic thinks it's only mild schizophrenia that enables me to embrace rationality and the scientific method during most waking hours, yet lull my insecure mind to sleep with the comfort that Father looks down from the heavens with special concern for my existence. On the other hand, a stereotypically fundamentalist partisan may think that evolutionary biologists like me deliberately lie to the public—for example, by claiming that religion and science are compatible—so we can go on foisting our privately favored, atheist philosophy on schoolchildren, and in the meantime get paid for it as members of publicly funded university departments. If either perspective represents what you think, then I sincerely hope you'll keep reading this book. I hope even more that, eventually, you'll change your mind.

TRUTH

Certain people have different standards for recognizing “truth.”¹ Given access to the same facts, two individuals can look at an issue and reach utterly different conclusions, to the point where they believe those with a different opinion belong somewhere on a spectrum from stupid to perverse. Take evolution, for example. In 2001, the science journalist Carl Zimmer published *Evolution: The Triumph of an Idea*, a popular book setting out the historical context of evolutionary biology and describing the evidence for its continued success as a scientific theory today. Nearly all of the reviews I've seen of his book are very positive. The few negative reviews I've seen are written anonymously as comments on websites selling the book, objecting to its content for reasons including its recognition of an ancient Earth and the common ancestry shared by living things. The presentation of facts behind these phenomena given by Zimmer are characterized by some as “outright lies.” One anonymous reviewer writes, incredulously, that only with such “deception” could anyone believe that (as they put it) humans somehow descended from fish, amphibians, and rodents. Other anonymous online reviewers are much more positive about Zimmer's book, but rather disparaging about their anti-evolutionary neighbors. Two possible reasons for this difference of opinion are as follows:

- (A) Online reviewers who disagree about Zimmer's book are zealots, people drawn to controversy and for some reason unable to disentangle their personal tastes and preferences from an honest appraisal of the evidence. An accurate verdict on Zimmer's book, and on the matter of evolution generally, lies somewhere in-between their extreme opinions.
- (B) Zimmer's book is either right or wrong on the subject of evolution. Life history either happened that way or it didn't. Hence, some of the book's

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Robert J. Asher

Frontmatter

[More information](#)

reviewers are wrong, and the others have made an accurate appraisal of the book and more generally about evolution.

To me, the choice is clear: “B” is correct and the reviewers who malign evolution are wrong. Carl Zimmer wrote an excellent book and put at these people’s fingertips evidence that, for some reason, they refuse to accept. There is no golden mean to draw between Zimmer’s book and the creationists who dislike it; rather, the latter group is misled. By itself, this is no big deal. People make mistakes all the time. More disturbing are the probable reasons why a given creationist clings to her/his opinions on evolution. If I had to guess, I’d say that it is highly unlikely that another book on the subject—one that again sets out some of the vast body of evidence from paleontology, development, and molecular biology in support of evolutionary hypotheses such as common ancestry—would change her/his mind. The creationist has something at stake, some worldview or allegiance, that makes a fair, honest view of the data behind Darwinian evolutionary biology impossible. Why?

Ninety years ago there were better reasons to be an anti-evolutionist. Young Earth creationism as we now know it didn’t really exist,² but eugenics did. This was an idea about deliberately manipulating human class and race by methods such as forced sterilization of prisoners and the mentally disabled. Unfortunately, this idea was taken quite seriously by many nineteenth- and early twentieth-century biologists, including the author of the high-school textbook used by John Scopes of the infamous “monkey trial” of 1925 in Dayton, Tennessee. In *A Civic Biology*, author G.W. Hunter not only outlines his (crude) understanding of Darwinian natural selection, but also writes about human social engineering:

Hundreds of families ... exist to-day, spreading disease, immorality, and crime to all parts of this country. ... They not only do harm to others by corrupting, stealing, or spreading disease, but they are actually protected and cared for by the state out of public money. Largely for them the poorhouse and the asylum exist. ... If such people were lower animals, we would probably kill them off to prevent them from spreading. Humanity will not allow this, but we do have the remedy of separating the sexes in asylums or other places and in various ways preventing intermarriage and the possibilities of perpetuating such a low and degenerate race.³

If my child were given this passage to read approvingly in a class, I’d be outraged too. Contrary to various reenactments of the Scopes trial, its well-known chief prosecutor, William Jennings Bryan,⁴ did not hate evolution because it contradicted his literal belief in Genesis. He didn’t have one. Instead, he viewed the Judeo-Christian creation story as most Jews and Christians do, both then and now: as a narrative, entirely compatible with a

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978-0-521-19383-2 - Evolution and Belief: Confessions of a Religious Paleontologist

Robert J. Asher

Frontmatter

[More information](#)

xvi | PROLOGUE

geologically ancient Earth.⁵ His antagonism toward evolution derived from his understanding that evolutionary theory was being trotted out in public schools as a potential justification for massive social inequality.⁶ In this context it's entirely reasonable that Bryan, a populist, pro-suffrage, anti-corporate former US Secretary of State and three-time Democrat Party nominee for president, came to regard evolutionary theory with such scorn. He associated the entire enterprise with "might-makes-right," advocated primarily by those who benefited from economic inequality.⁷ If that's what Darwinian evolutionary biology were all about, I'd want it banned from schools too.

In the twenty-first century, creationists do not have this excuse to hate evolutionary biology. No serious biologist today advocates the long-discredited notions epitomized in the preceding quote from Hunter's 1914 textbook. On the contrary, it is an evolutionary understanding of human biological history that makes it clear just how closely interrelated all modern humans are to one another, showing that "racial purity" is baseless.⁸ To blame evolution for some modern wacko's racial bigotry would be like blaming gravity for the firebombing of Dresden. In fact, it would be worse: physicists still accept that gravity plays a key role in dropping bombs, whereas contemporary evolutionary biologists do not hold that Darwinian natural selection justifies racism. If you want Darwin banned from your school due to his theory's historical connections with eugenics, you may as well try to jettison vector physics too, since it comprises the principles by which nuclear warheads reach their destination when perched atop a ballistic missile. If only the physicists and engineers of the world had never been taught the evil principles of force, acceleration, and the gravitational constant, we might live in a world free of bombs and bullets!

But seriously, there is an obvious explanation for antipathy toward Charles Darwin among the various anti-evolutionist groups of the last 150 years, groups that are often connected to one kind of intense religious creed or another: they think Darwin threatens their worldview. Contributing to this conviction are those biologists who portray evolution as tied to atheism, who help convince the devout that a natural connection of humanity with other organisms is incompatible with their religion. Compounding things further is the fact that adherence to many religious worldviews is not flexible, and any scientific theory or philosophy that seems to threaten certain beliefs *must* be wrong, whatever some scientist may say about evidence.

Let's consider an example of potential conflict between religious doctrine and what science tells us about history. The Book of Mormon makes reference to the use of elephants, horses, chariots, and steel among pre-Colombian civilizations of the New World.⁹ While elephants and horses have a long history throughout geological time on the North American

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Robert J. Asher

Frontmatter

[More information](#)

continent, members of these groups became locally extinct long before any of the technologically advanced cultures of Central America began to thrive roughly 3500 years ago.¹⁰ The horses present in North America during historical times derive from *Equus caballus* introduced from Spain at the close of the fifteenth century.¹¹ Furthermore, archeological evidence does not support the use of steel or wheels for transport or warfare in any New World civilization.¹² This is not to say that mainstream Mormons read their scriptures as a literal guide to New World history, or that some interpretive license cannot be applied in understanding these texts. Perhaps the English word “horse” does not accurately convey the meaning of the original term from reformed Egyptian, the language the founder of the Mormon religion, Joseph Smith, was reported to have read when he translated the Book of Mormon.¹³ In any event, those Mormons who do interpret their holy books literally cannot simultaneously embrace many well-established facts of paleontology and archeology as they pertain to the last 10000 years in the Americas. Literalists of the Mormon tradition, and those of many other faiths, have to reject at least some scientific interpretations of Earth history in order to maintain their beliefs.

Incompatibility between some forms of religion and science is not news, and you do not need me to point it out to you. However, this tension highlights the way different people come to regard something as “true.” On the one hand, “truth” may derive from experience, from the community in which one is raised, and from an inner conviction that relates to that experience. Potentially different is the “truth” deduced from observation by people with nothing personal at stake beyond an explanation of the phenomenon at hand. An awareness of this dichotomy is essential in making the public case for any rational, scientific explanation of a natural phenomenon, such as evolution.

I don’t know if the anti-evolutionist reviewer of Carl Zimmer’s book paraphrased above is Muslim, Mormon, Protestant, Jewish, or some other faith. To many anti-evolutionists, their religious beliefs are just as “true” and integral to their identity as any empirical observation about the natural world. Let’s say for a moment that I really did want to convey the “truth” of evolution to that person. One approach is to lay out the evidence for it yet again, as University of Chicago biologist Jerry Coyne recently did in his appropriately titled book, *Why Evolution is True*.¹⁴ Coyne’s book is excellent; it has one of the best all-round discussions of the plurality of evidence in favor of Darwinian natural selection as the engine behind biodiversity. Will modern creationists be swayed by another account of the hard data behind evolution? I doubt it. In fact, Coyne’s book—while well-written and very accessible—doesn’t really try to reach people not already in the realm of the strictly empirical.¹⁵ Elsewhere in his talks and writings, Coyne says there is one way to be rational, and any of this stuff about alternative

“truth” is relativist nonsense not worth the flatscreen monitor on which it’s written:

What, then, is the nature of “religious truth” that supposedly complements “scientific truth”?... Anything touted as a “truth” must come with a method for being disproved—a method that does not depend on personal revelation. ... It would appear, then, that one cannot be coherently religious and scientific at the same time. That alleged synthesis requires that with one part of your brain you accept only those things that are tested and supported by agreed-upon evidence, logic, and reason, while with the other part of your brain you accept things that are unsupportable or even falsified.¹⁶

I disagree, and would argue that there are many things in life that deserve the descriptor “truth” but are not amenable to rational disproof. Coyne is absolutely correct to say that coddling the irrational—those for whom “religious truth” means stoning adulterers or drinking poisoned Kool-aid—is incompatible with science and, more generally, civil society. However, while science is a-religious, it is not anti-religious, at least in the important sense that it does not (indeed, cannot) concern itself with phenomena beyond what we rationally perceive. It is not only possible to portray science as lacking fatal consequences for those religious tenets that concern things we cannot empirically observe (such as purpose or agency in life), but it is precisely what scientists have *got* to do to make a compelling case to the public. Coyne tosses “religion” into the same dumpster as any passing superstition, and actively encourages the perception that science is corrosive to any religious sentiment. Yes, there are religious claims that are demonstrably wrong in an empirical sense, such as the horse-drawn chariots of ancient Central America mentioned in the Book of Mormon. However, such specific claims do not do justice to the religion integrally tied into the identity of many lay-people and scientists alike, an identity that by any meaningful definition is worthy of the name “truth.”

IRRATIONAL TRUTH

Although I’ve lived in the United Kingdom for the past several years, I’m originally from the United States—western New York state, to be specific. I have an affinity for my hometown ice hockey team, the Buffalo Sabres. As a metaphor for the point I’m trying to make, ice hockey is not much better than the caricature of superstition that makes up Coyne’s view of religion. However, it does show something about “truth” in what I hope is an accessible way.

Rick Jeanneret has been the play-by-play announcer of the Buffalo Sabres since 1971, a tenure spanning nearly the team’s entire existence. The Sabres

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978-0-521-19383-2 - Evolution and Belief: Confessions of a Religious Paleontologist

Robert J. Asher

Frontmatter

[More information](#)

are a professional ice hockey team from maybe the only town in the United States to host multiple big-league sports teams over the last half-century without ever winning any of the national titles of major sports leagues. No superbowls (although we lost four in a row in the early 1990s), no Stanley Cups, ever.¹⁷ We do have a championship lacrosse team (Bandits), and a solid minor-league baseball team (Bisons), which should have gone pro in the 1990s, but the league opted for Denver instead. We used to have a good indoor soccer team (Blizzard), and I have a vague memory of the Buffalo Braves professional basketball team, but they didn't win any titles either. In any event, I've been a Sabres fan all my life, and for some reason I find an extraordinary level of comfort in the fact that in nearly every game I've ever heard on TV or radio, the same voice has been doing play-by-play for 40 years: Rick Jeanneret. With a transistor radio tuned to WGR 550 stashed under my pillow, way after my bedtime, I cried with joy when Buffalo thrashed the Leafs 14–4 back in 1981. I shouted with almost as much gusto as Rick did when Chris Drury (who's since abandoned us like so many other mercenaries in the NHL—why can't players sacrifice a million for loyalty?) banged in the tying goal with seconds left in the third to force overtime versus the Rangers in the 2007 playoffs. Buffalo won that series but was eliminated by Ottawa in the next. Chris Drury now plays for the Rangers, and the Sabres have not made it to the playoffs since.¹⁸ I am a Buffalo sports fan!

Hearing Rick Jeanneret shout in ecstasy with a Sabres goal brings me close to uncounted moments of euphoria during childhood. I'm sorry to sound mushy, but I love this guy, and I live in fear that he will retire without ever having heralded my boys through four wins in a Stanley Cup final. He was there when we lost in 1975 versus Philly, and in 1999 when Dallas “won” the series with an illegal [NO] goal in overtime of game six. Just like me, and thousands of other true Buffalo fans, Rick has stuck with the Sabres through thick and thin, and if ever a professional sports team, an announcer, or a city, deserved to win, it's Rick Jeanneret and the Sabres of Buffalo.

Now let's look at professional ice hockey from a rational, environmentalist perspective. To get to their 82 games per year (not including the playoffs), many of which are in places like Atlanta and Dallas (where kids don't realize that ice can also form outside of rinks) or Edmonton and Montreal (where, as in Buffalo, they still admire how a Zambonied ice surface completely lacks frozen twigs), the Sabres as a team emit tons of CO₂ into the atmosphere by flying all over the place. It's safe to say that if the NHL or other pro-sports leagues didn't fly, and if NASCAR shut down altogether, carbon emissions in North America would decrease by a small but measurable amount. Given the environmental change related to global

Cambridge University Press

978-0-521-19383-2 - Evolution and Belief: Confessions of a Religious Paleontologist

Robert J. Asher

Frontmatter

[More information](#)

xx | PROLOGUE

warming that most scientists seriously consider to be threatening humanity's current standard of living, it would be entirely rational for society as a whole to restrict carbon emissions related to non-essential, recreational activity. This is the scenario anticipated by rational thought: burning fossil fuels contributes directly to global warming and will likely lead to major environmental degradation. Broadly speaking, the feeding frenzy of billions of humans during this century will spell the end of the quality of life that we in North America, Eurasia, Australia, and much of the rest of the world enjoy. Rational thought tells me in no uncertain terms that, even given some ambiguity as to the timing, it is in the best, long-term interest of future generations that I, right now, stop contributing to abuse of the Earth's environment. Reducing my consumption of fossil-fuel-derived resources is a part of that, and, as petty as it may sound, I should immediately cease my patronage of consumerist fluff like professional ice hockey, and encourage all of my friends and colleagues to do the same.

Huh? No way! I have to admit there have been times (e.g., the 1999 and 2007 playoffs) when my dedication to this team led me to reject rationality in the lengths I would go to support them. For example, in the midst of a promising playoff run, I cannot rule out offering substantial sums of my own limited wealth, maybe even endurance of some pain or discomfort (sacrificing a toe?), if it would help the Sabres win. My attachment to this team is probably not unlike that of the much maligned (in New York) construction worker Gino Castignoli for his beloved Boston Red Sox. In 2008, Castignoli secretly placed a Boston Red Sox jersey in concrete mix which was then poured into the foundation of the then-new stadium for the New York Yankees. The secret didn't last for long, but long enough for the concrete to dry. When it became clear what had happened, the loyal workers of the New York based construction firm searched for and found the offending talisman under 2.5 feet of concrete, hammering through the newly solidified barrier to remove the Red Sox jersey at considerable time and expense.¹⁹

My desire to see the Buffalo Sabres to victory is absolutely true, just like that of Gino Castignoli for his Boston Red Sox. However, it is not the product of reason, but an emotional attachment to a group of large, violent men wielding wooden/fiberglass/aluminum sticks who chase a heavy, rubberized disc at high speeds over an artificially frozen playing surface with sharp metal blades strapped to their feet. Worse, the actual players are (with a few exceptions) not particularly dedicated to this team (witness Chris Drury of the New York Rangers). Nearly all of them are from Canada, Finland, Sweden, Russia, Michigan, Minnesota, etc. This doesn't necessarily mean that none of them is loyal; in fact, along with Rick, we've got the longest-serving active coach (former winger Lindy Ruff) and equipment manager

Cambridge University Press

978-0-521-19383-2 - Evolution and Belief: Confessions of a Religious Paleontologist

Robert J. Asher

Frontmatter

[More information](#)

(recently retired Rip Simonick) in the NHL. However, even here I lose perspective, as if a dedicated bunch of local hockey players from western New York would make the pointless consumption of resources in this frivolous sport any less environmentally damaging.

As a human, much of how I define myself, including tribal affinities toward sports teams, is not particularly rational by any empirical standard. Multiplied by 6.5 billion, this is a very bad thing for planet Earth, at least insofar as we expect this place to keep supporting our eclectic tastes. However, there is nothing illusory about human devotion to obscure pastimes, such as my attachment to the Sabres. I wouldn't rule out attempts to make ice hockey more environmentally friendly. However, if this is your "goal," you will not get anywhere by telling fans they're idiots for enjoying the sport, or by claiming that their emotional attachment to it is irrational and stupid. For better or worse, we've got the attachment, which is no less rational than our taste for wings, bleu cheese, and canned beer. Consumed in excess they may be damaging, and you may prefer something else. However, we're talking about identity, rather than some purely rational choice. When the Sabres eventually bring home the cup (the very thought of which makes me religious), the sweet taste of victory will exceed even that of our wings, and it will be just as "true" to western New Yorkers as any scientific advancement of recent memory.

RELIGIOUS IDENTITY

In a 2003 lecture in the United States,²⁰ Richard Dawkins explained why he regards the religious labeling of children to be a highly immoral act. Few would take seriously a five-year-old child who called her/himself a Maoist or a disciple of Freud, and most would regard with some concern the parents of that child. In the same vein, says Dawkins, it is irresponsible to call your five-year-old a Lutheran or Muslim. The state of being a Freudian or Maoist implies certain political sympathies that, if properly understood, require a fairly adult level of political sophistication. Of course one could argue that to the extent anyone properly understands Freud or Mao, they would cease subscribing to their largely discredited socio-political philosophies. Many would say the same for the world's major religions, and that all of these labels have weighty socio-political implications, not for uninformed children. Only adults take upon themselves these labels, voluntarily, after careful consideration as to what the attached belief system behind each label actually means.

Or do they? One of the questions asked of Dawkins after his lecture was this: what can an average church-going adult say about the content of her/his creed that a young child cannot? Do adults really "carefully consider"

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Robert J. Asher

Frontmatter

[More information](#)

xxii | PROLOGUE

the content of their religion prior to taking upon themselves its label? The member of the audience who asked this question implied (rightfully, I think) that they generally do not, and that Dawkins was making an inappropriate comparison between socio-political philosophy (e.g., Maoism) and cultural identity (e.g., Islam). Of course we don't call young children Freudians, Libertarians, Jazz fanatics, or other such labels which require some level of experience as an adult to acquire. But "Muslim" as a cultural concept is not the same kind of label as "Maoist." It entails much more of a social identity and not necessarily a political one. A child can be "Muslim" in much the same way as he or she is Montenegrin, Minnesotan, or Malagasy, and an individual can grow up to hold a very broad range of socio-political sympathies within any of these identities. Hence, with the important qualification that many conversions into a given religion do happen for carefully premeditated, adult reasons, the majority of a given creed's adherents classify themselves as such for no other reason besides the cultural heritage into which they're born. This fact is important to consider for those who claim that their particular religious worldview is the most "rational," but that is another issue.

For now, the point is that most everyone develops deep connections with one or more aspects of the socio-cultural milieu in which they're raised, and these connections are not intrinsically wrong. To the extent that biologists want to educate people about the natural world, it would be wise to respect this fact. This doesn't mean that people like Jerry Coyne should feign admiration or respect for what he regards as superstition. However, it does mean that if he wants to make a positive difference in the public discourse about evolution, a scientist like him (in the words of astrophysicist Lawrence Krauss²¹) has to reach out to people where they are, not where he thinks they should be. A lot of people out there recognize "truth" without necessarily distinguishing between the empirical and the personal, between factual common sense and the gravitas of how they define themselves as Mormons, New Yorkers, or hockey fans. The challenge for a new book on evolution, one which will at least try to reach an audience that in recent years has been hostile to the idea, I think lies in making this distinction. Camps on either side of the culture wars deserve to be reminded that while nonsense dressed up as religion is still nonsense, not everything about our existence is equally accessible as a subject of scientific inquiry. There probably is at least something comprehensible in the vast majority of what surrounds us, but from my perspective as an evolutionary biologist, scientific inquiry is limited by human rationality and our capacity to observe.

Throughout these pages, I will try to make two points: first, that evolution is "true" as a mechanism that explains how living things on our planet have been derived from similar living things that came before them, and furthermore is not about explaining that very first living thing. Second, I

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Robert J. Asher

Frontmatter

[More information](#)

PROLOGUE | xxiii

will try to make the case that understanding how evolution works does not address the potential “who” or “why” behind it. This leaves pursuit of such matters to other fields, but not because I want to shield religion or theology from the acid of rational scrutiny. Rather, it is because I want you, the public, to understand that evolutionary biology is not a limitless enterprise for explaining everything. The challenge of comprehending how the Earth’s biodiversity has come about, and how species are interconnected, is hard enough without throwing God into the mix. You’ll understand biology better if you’re aware of this fact.

If you’re an atheist, incredulous at the idea that a paleontologist like me is failing to go the whole hog, retaining some sentimentality for the “myths” by which I was raised, then let me start by proposing that evolutionary biology is not the best means by which you or anyone else can decide what is moral or seek to understand the purpose or meaning behind life. If you’re deeply religious and skeptical of our atheist colleague almost as much as you are of me—trying to have my spiritual cake and eat it too—then let me suggest that understanding the mechanics of biology does not concern the agency behind it, just as understanding how a lightbulb works does not concern the existence of Thomas Edison. Unless you’re superstitious, such an understanding does not have to impinge upon your identity. In both cases, if you’ll bear with me, I want to chart a course through the false notion that evolution rules out religious belief. If you come with me that far, then appreciating the facts behind the evolutionary interconnectedness among living things will be much easier.

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