

Chapter 1

The Future Can Differ From The Past

This is a book of tall claims about evolution: That it can become uncontroversial; that the basic principles are easy to learn; that everyone should *want* to learn them, once their implications are understood; that evolution and religion, those old enemies who currently occupy opposite corners of human thought, can be brought harmoniously together.

Can these claims possibly be true? Isn't evolution the most controversial theory the world has ever seen? Since it's a scientific subject, isn't it hard to learn? If the implications are benign, then why all the fear and trembling? And how on earth can the old enemies of evolution and religion do anything other than come out of their opposite corners fighting?

I might be an optimist, but I am not naive. Allow me to introduce myself: I am an evolutionist, which means that I use the principles of evolution to understand the world around me. I would be an evolutionary biologist if I restricted myself to the topics typically associated with biology, but I include all things human along with the rest of life. That makes me an evolutionist without any qualifiers. I and my fellow evolutionists study the length and breadth of creation, from the origin of life to religion. I therefore have a pretty good idea of what people think about evolution, and I can report that the situation is much *worse* than you probably think. Let me show you how bad it is before explaining why I remain confident about accomplishing the objectives of this book.

Most people are familiar with the reluctance of the general public to accept the theory of evolution, especially in the United States of America. According to the most recent Harris Poll, 54% of U.S. adults believe that humans did not develop from earlier species. That is *up* from 46% in 1994. Rejection of evolution extends to beliefs about the origin of other species, the fossil record as evidence for evolution, and the constant refrain that evolution is "just a theory."

To make matters worse, most people who do accept evolutionary theory don't use it to understand the world around them. For them it's about dinosaurs, fossils, and humans evolving from apes, not the current environment or human condition. The polls don't measure the fraction of people who relate evolution to their daily lives, but it would be miniscule.

It's easy for scientists and intellectuals to smile at the ignorance of religious believers and the general public, but the fact is that they're not much better. The Ivory Tower is more aptly named the Ivory Archipelago. It consists of hundreds of isolated subjects, each divided into smaller subjects in an almost infinite progression. People are examined less with a microscope than with a kaleidoscope—psychology, anthropology, economics, political science, sociology, history, art, literature, philosophy, gender studies, ethnic studies. Each perspective has its own history and special assumptions. One person's heresy is another's commonplace. With respect to evolution, most scientists and intellectuals would say that they accept Darwin's theory, but many would deny its relevance to human affairs or would blandly acknowledge its relevance without using it themselves in their professional or daily lives. In effect, there is a wall within academia that restricts the study of evolution to biology and a few human-related subjects such as human genetics, physical anthropology, and specialized branches of psychology. Outside this wall, it is possible for a person to get their PhD without a single course in evolution or more than a casual reference to evolution in their other courses. That is why the term "evolutionary biologist" sounds familiar while the more general term "evolutionist" has a strange ring.

Some intellectuals rival young earth creationists in their rejection of evolution when it comes to human affairs. A 1997 article in *The Nation* titled "The New Creationism: Biology Under Attack" put it this way:

The result is an ideological outlook eerily similar to that of religious creationism. Like their fundamentalist Christian counterparts, the most extreme anti-biologists suggest that humans occupy a status utterly different from and clearly "above" that of all other living beings. And, like the religious fundamentalists, the new academic creationists defend their

stance as if all of human dignity—and all hope for the future—were at stake.

The famous metaphor of the mind as a blank slate captures the idea that we can understand the human condition without any reference to basic evolutionary principles or our own evolutionary past. The most extreme academic creationists reject not just evolution but science in general as just another social construction, but they are only one particularly fierce tribe that inhabits the Ivory Archipelago. Other tribes are fully scientific but still manage to exclude evolutionary theory. In a 1979 survey of 24 introductory sociology textbooks, *every one* assumed that biological factors were irrelevant for the study of human behavior and society. Fast-forwarding to the present, political scientist Ian Lustick could say this about the human social sciences in a 2005 article:

Of course social scientists have no objection to applying evolutionary theory in the life sciences—biology, zoology, botany, etc. Nevertheless, the idea of applying evolutionary thinking to social science problems commonly evokes strong negative reactions. In effect, social scientists treat the life sciences as enclosed within a kind of impermeable wall. Inside the wall, evolutionary thinking is deemed capable of producing powerful and astonishing truths. Outside the wall, in the realm of human behavior, applications of evolutionary thinking are typically treated as irrelevant at best; usually as pernicious, wrong, and downright dangerous.

It might seem that the situation can't get more bleak, but it does. Evolutionary biologists are themselves conflicted about the study of our own species. When Harvard evolutionary biologist Edward O. Wilson published his encyclopedic book *Sociobiology* in 1975, his fiercest critics were fellow Harvard evolutionary biologists Stephen Jay Gould and Richard Lewontin. Fast forwarding to the present, the National Science Foundation's most recent and ambitious effort to fund evolutionary research is called the National Evolutionary Synthesis Center (NESCent), whose basic mission is to "help

foster a grand synthesis of the biological disciplines through the unifying principle of descent with modification.” This language is not as grandiose as it might seem. Biologists expect evolution to serve as a unifying theory, delivering “powerful and astonishing truths” as Ian Lustick put it. Yet, as a curious complement to his diagnosis of the social sciences, there is not a single member of NESCent’s scientific advisory board representing a human-related subject, apart from human genetics. It seems that the barrier separating the study of humans from the study of the rest of life is largely respected on both sides, even by evolutionary biologists who are trying to foster a grand synthesis.

Knowing all of this, I remain confident that there is a path around both walls of resistance, the first denying evolution altogether and the second denying its relevance to human affairs. Darwin provides an example for us to emulate: On any given day of his life he might be found dissecting barnacles, minutely observing the behavior of his children, or germinating seeds that had first been fed to mice, which in turn had been fed to hawks at the London zoo. The same person who studied earthworms and orchids also studied human morality. Darwin’s interests were so far flung that his mail came by the wagonload from all corners of the globe. One letter about plant distributions in India might be followed by another on the emotional expressions of African natives. Darwin’s empire of thought was larger than the British Empire.

How was Darwin able to unite so many subjects and blend humans seamlessly with the rest of life? Perhaps he was a genius. Perhaps there was less to know back then. Perhaps, but the main reason is more interesting and relevant to our own situation. It was primarily Darwin’s *theory*, not his personal attributes or time and place, that enabled him to build his empire of thought. Moreover, his theory was powerful even in a rudimentary form because Darwin knew so much less about the details of evolution than we do now.

The same theory enables modern evolutionists to build empires of their own. I’m no Darwin but my own career shows what a good theory can do. I have studied creatures as diverse as bacteria, beetles, and birds. I have studied topics as diverse as altruism, mating, and the origin of species. I can understand and enjoy the work of my colleagues who study an even greater range of creatures and topics. Please don’t think that I am boasting about myself—that would be boring. I am boasting about the *theory*, and the

whole point of this book is to show how *anyone* can profit from it. It takes a great theory, not great intelligence, to acquire this kind of synthetic knowledge.

If our own species can be included in this grand synthesis, there is every reason to do so. It would be like a strange figure emerging from the shadows to enjoy the warmth of a campfire with good company. My own career shows that this is possible. Just like Darwin—not because I share his personal attributes but because I share his theory—I have seamlessly added humans to the bestiary of animals that I study, on topics as diverse as altruism, beauty, decision-making, gossip, personality, and religion. I publish in anthropology, economic, philosophy, and psychology journals in addition to my biological research. My books are on subjects that most people don't associate with evolution: *Unto Others: the evolution and psychology of unselfish behavior* (co-written with a world-class philosopher named Elliott Sober), *Darwin's Cathedral: evolution, religion, and the nature of society*, and *The Literary Animal: Evolution and the Nature of Narrative* (co-edited with a bold young literary scholar named Jonathan Gottschall). These are not popular accounts watered down for a general audience. They are written for the experts, most of whom spend their lives studying a much smaller range of subjects. Evolutionists can stride across human-related subjects at the highest level of intellectual discourse, in the same way that evolutionary biologists are already accustomed to striding across biological subjects.

Darwin should be emulated in another respect. His interactions with people from all walks of life were primarily respectful and cordial. We can learn from his humility and good humor in presenting his theory to others, in addition to the theory itself. Since writing *Unto Others* and *Darwin's Cathedral*, I have spoken about evolution, morality and religion to diverse audiences around the world. Perhaps my most memorable experience was a televised conversation with a group of faculty and monks from St. John's University in Minnesota, a Catholic University and oldest Benedictine Monastery in North America. My co-author Elliott Sober was invited to converse with His Holiness the Dalai Lama, making me unspeakably jealous. These encounters are the very opposite of the sterile “debates” that are staged between creationists and evolutionists. If this kind of cordial dialogue can take place for evolution and religion, then surely it can take place for evolution and any other human-related topic.

Indeed, evolution is increasingly being used to study all things human in addition to the rest of life. I recently conducted an analysis of the highly respected scientific journal *Behavioral and Brain Sciences (BBS)*. The format of *BBS* is for a lengthy target article to be followed by commentaries by other authors, providing a comprehensive exploration of a particular topic. The topics covered by *BBS* are highly diverse, from neuroscience to cultural anthropology. *BBS* articles are subject to a bruising review process before they are accepted, not to speak of the scrutiny they receive in the commentaries. They often have a large impact on subsequent research. According to a formula that the scientific publishing industry uses to calculate the impact of its journals, *BBS* is ranked first among 40 behavioral sciences journals and 7th among 198 neuroscience journals. If anything qualifies as solid and trend-setting science, it is a *BBS* target article.

My analysis shows that during the period 2000-2004, 31.5% of the *BBS* target articles used the word “evolution” in the title or as a key word, for topics as diverse as religion, schizophrenia, infant crying, language, food transfer in hunter-gatherer societies, facial expression, empathy, vision, brain evolution, decision making, phobias, mating, cultural evolution, and dreams. In other words, *using evolution to study our own species is not a future event or fringe science. It has already arrived.*

Curious, I e-mailed a survey to the authors of these target articles to learn how they acquired their evolutionary expertise. I discovered that most of them received their formal training in other areas (such as psychology, anthropology, or linguistics) with little or no exposure to evolution in college or graduate school, as might be expected from my bleak portrayal of the Ivory Archipelago. Instead, they encountered evolutionary theory on their own, often by happenstance, and gradually built up their expertise until it became a guiding force in their research. The fact that they could train themselves so easily indicates that the power of evolutionary thinking does not reside in a mass of technical detail but something much simpler that perhaps anyone can learn. In many ways they recapitulated the experience of Darwin, who built his empire of thought without the benefit of the masses of technical detail available to us today.

Perhaps you can begin to see why I am confident about achieving the objectives of this book, but it gets better. I am a teacher in addition to a scientist. Every year I teach

a course called “Evolution for Everyone” that is open to all students. Last year they came from the following departments: Anthropology, Art, Biology, Business, Chemistry, Cinema, Computer Science, Creative Writing, Economics, Education, Engineering, English, History, Human Development, Linguistics, Management, Mathematics, Nursing, Philosophy, Physics, Political Science, and Psychology. They included new students fresh from high school, seasoned upperclassmen, and even more seasoned adults from the community continuing their education. At the end of the semester the students are asked to evaluate the class anonymously, so they have nothing to gain or lose by their comments. Here is a sample of what they have to say:

“This course provides evidence that evolution is evident in everything. It revolutionized my way of viewing problems.”

“This course changed the way I look at things in general. I try to see and understand them from an evolutionary perspective now.”

“This course shows how positive evolution can be. It teaches you a great deal and increases one’s interest.”

“I came into the class not knowing a lot about evolution. I now have an entirely new outlook on how evolution can be applied to many aspects of life.”

“I had taken evolution classes in high school and never felt it was interesting. But this class changed all my views upside down. The most boring theories became interesting thoughts that I could relate to in my own day to day life.”

I wish that I could attribute these glowing comments to my prowess as a teacher, but once again the credit goes to the theory. My contribution was to help the students recapitulate the experience of Darwin, much as the BBS authors did on their own initiative. To learn more about how my students responded to the course, I gave them a survey that measured their political and religious values, science background, prior knowledge of evolution, and general thinking skills. The details will be published in a technical journal for anyone to scrutinize my methods, but here are the results:

- The *majority* of students, not just a select few, learned to think about evolution as a powerful way to understand the world in general and especially their own interests and concerns.

- A background in science or prior knowledge of evolution was *not required*. Freshman English majors got the message just as strongly as senior Biology majors.
- The course succeeded across the *entire range* of political and religious beliefs, from feminists to young republicans and from atheists to believers. It might seem incredible that a religious believer can think positively about evolution, not with difficulty but just as easily as anyone else, but this fact will make more sense as we proceed.
- The students increased their *general thinking skills*, not just their knowledge about evolution. In plain language, they got smarter. It might seem incredible that learning about evolution can make you more intelligent, but think about it: Darwin built his empire of thought by applying a single set of principles to a vast diversity of subjects, which comes close to a definition of general intelligence.

For many students who take a course such as the one that I offer, learning about evolution is like walking through a door and not wanting to return. Using it to think about their interests and concerns becomes second nature, like riding a bicycle. They are eager to develop their expertise in subsequent courses and disappointed by professors who do not share their newfound perspective. In response to this demand, I and my colleagues at Binghamton University created a program called EvoS that enables anyone to use evolutionary theory to explore the pageant of life on earth, including the pageant of human life (<http://bingweb.binghamton.edu/~evos/>). I like to think of EvoS as a new island in the Ivory Archipelago, a tropical paradise, so to speak. A student describes it as well as I can: “EvoS provides a stimulating atmosphere within which biologists, psychologists, anthropologists, philosophers, social scientists, and even those in the arts can transcend traditional academic boundaries and collaborate in addressing mutually interesting questions. It creates a think-tank atmosphere of sorts, and it’s a beautiful thing!”

Now I hope you can see why I am confident about accomplishing the objectives of this book. In a sense they have already been accomplished. There is already a path

around the two walls of resistance, the first denying evolution altogether and the second denying its relevance to human affairs. It is not a narrow path accessible to only a courageous few, but a thoroughfare regularly traveled by many. In this book I have tried to provide the barest of essentials so that you, the reader, can begin to travel the same thoroughfare. Do not be misled by the simplicity of the chapters. Simplicity is a virtue and the chapters cover the same issues discussed by evolutionists at the most advanced level. I hope you will agree with me by the end that when it comes to evolution and its widespread acceptance, the future can differ from the past.