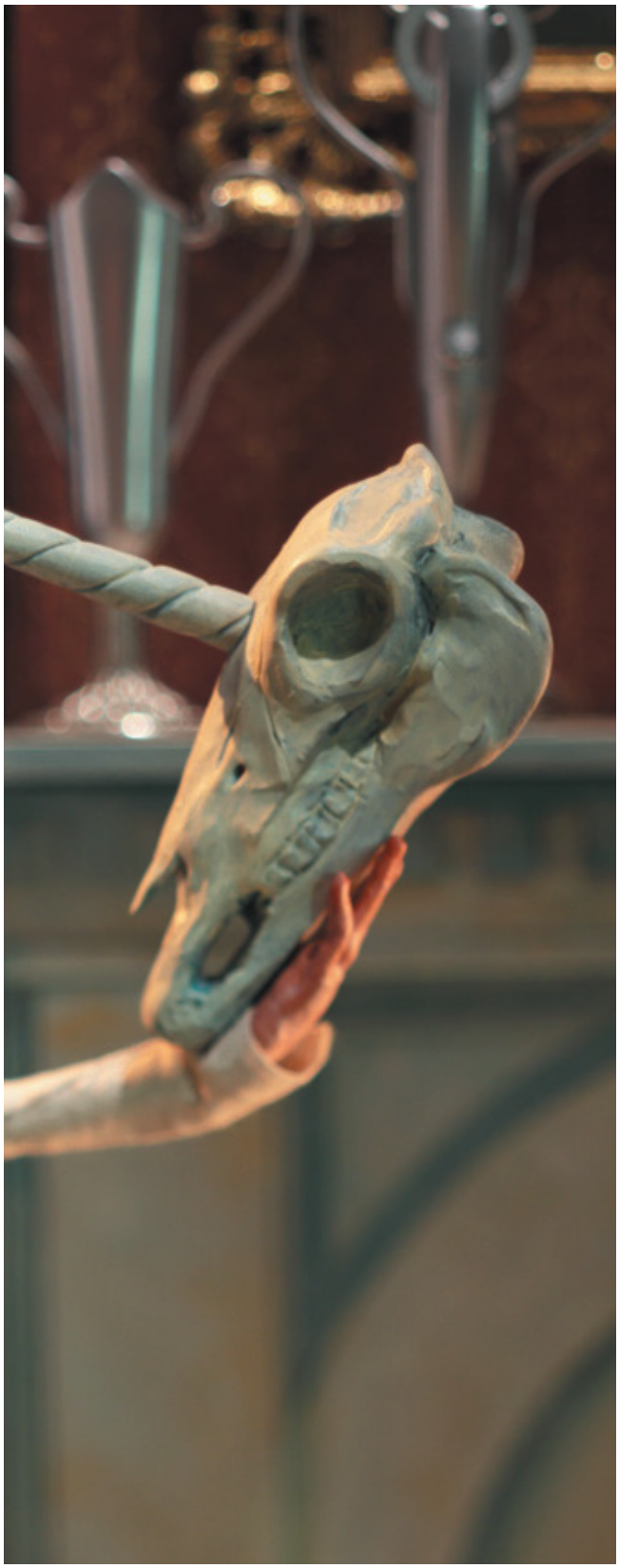

Evolution Is the Only Reasonable Explanation for the Diversity of Life on Earth

BY MICHAEL SHERMER

ON JANUARY 14, 1844, CHARLES Darwin wrote a letter to his friend Joseph Hooker, recalling his voyage around the world on the HMS *Beagle*. After five years at sea and seven years at home thinking about the origin of species, Darwin came to this conclusion: "At last gleams of light have come, & I am almost convinced (quite contrary to opinion I started with) that species are not (it is like confessing a murder) immutable."

Like confessing a murder. Dramatic words. But it doesn't take a rocket scientist—or an English naturalist—to understand why a theory on the origin of species by means of natural selection would be so controversial. If new species are created naturally—not supernaturally—what place, then, for God? No wonder that more than a century and a half later people of some religious faiths still find the theory so terribly threatening. But in those intervening years scientists have found so much evidence in support of the theory that it would be truly astonishing if it turned out not to be true—as shocking as if the germ theory of disease fell apart or if astrophysicists were forced to abandon the big bang model of the universe. Why? Because of a convergence of evidence from many lines of inquiry.

For example: Comparing data from research in population genetics, geography, ecology, archaeology, physical anthropology and linguistics, scientists discovered that Australian Aborigines are genetically more closely related to South Asians than they are to African blacks—which makes sense from an evolutionary perspective because the migration pattern of humans out of Africa led them to Asia and then to Australia.

The consistency of dating techniques also gives us confidence that the theory is true. Uranium-lead, rubidium-strontium and potassium-argon dating, for example, are all reasonably consistent in their determination of the age of rocks and fossils. The ages are given in estimates, but the margins of error are in the range of 1 percent. It is not as if one scientist finds that a fossil hominin is 1.2 million years old while another one finds it is 10,000 years old.

Not only are the dates consistent, but the fossils also show intermediate stages—something antievolutionists still insist don't exist. There are now at least six intermediate fossil stages in the evolution of whales, for instance, and more than a dozen fossil hominins, several of which must have been intermediate with humans since the hominins branched off from chimpanzees six million years ago. And geologic strata consistently reveal the same sequence of fossils. Trilobites and mammals are separated by many millions of years, so finding a fossil horse in the same geologic stratum as a trilobite—or even more drastically, a fossil hominin in the same stratum as a dinosaur—would prove problematic for the theory of evolution, but that has never happened.

Finally, vestigial structures are signs of evolutionary history. The Cretaceous snake *Pachyrhachis problematicus* had small hind limbs, which are gone in most of today's snakes. Modern whales retain a tiny pelvis for hind legs that existed in their land-mammal ancestors. Likewise, flightless birds have wings. And of course, humans are replete with useless vestigial structures—a distinctive sign of our evolutionary ancestry—such as wisdom teeth, male nipples, body hair, the appendix and the coccyx.

As the great geneticist and evolutionary theorist Theodosius Dobzhansky famously noted, "Nothing in biology makes sense except in the light of evolution."

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GMOs ARE NOT SCARY—"Frankenfoods" sound like a terrifying concept, but despite extensive testing, genetically modified organisms have never been shown to be dangerous.

100% BS—No, we do not use only 10 percent of our brainpower. Nobody knows where this "fact" even came from, but it's nonsense.