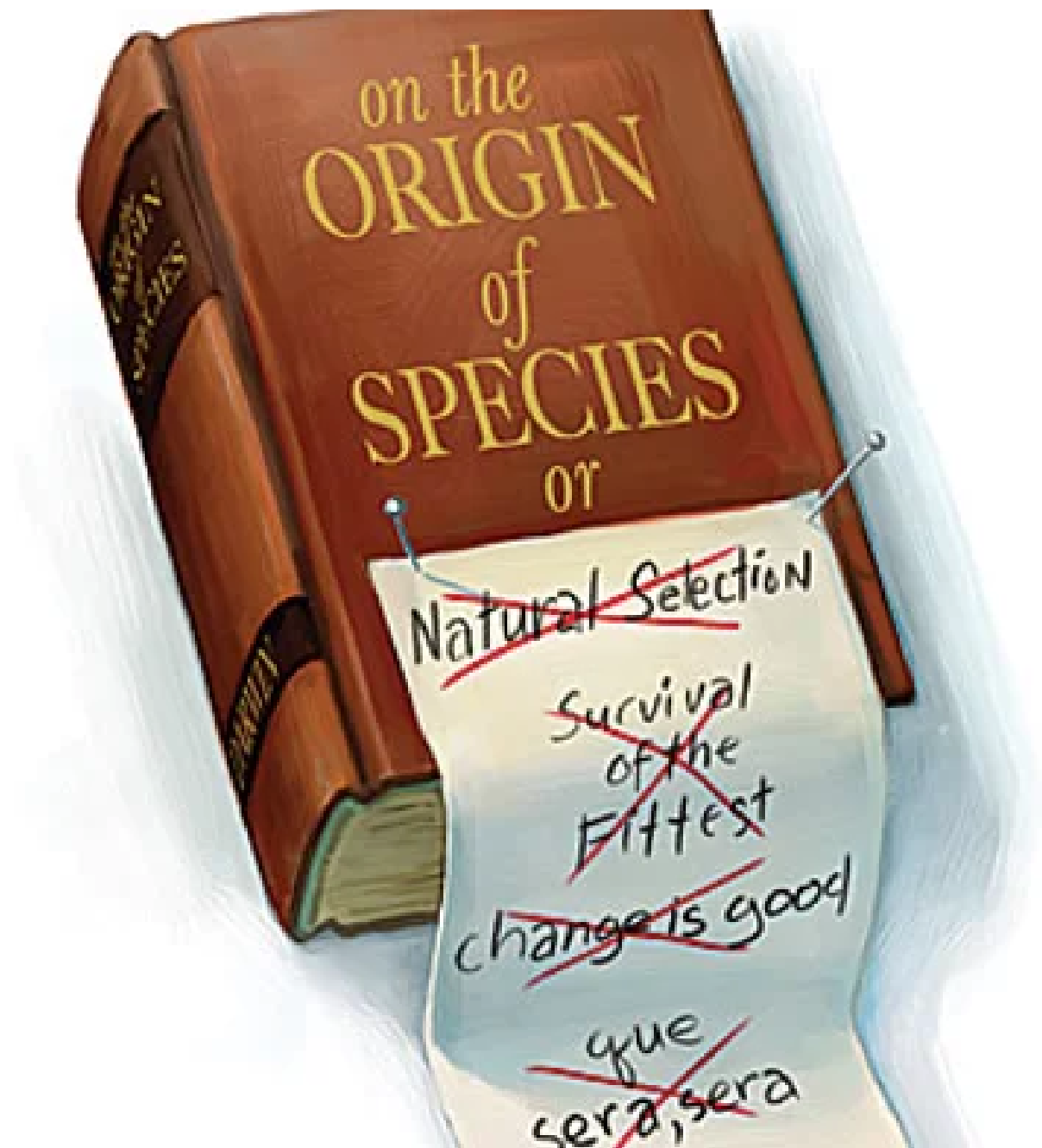


THE SCIENCES

A Skeptic's Take on the Public Misunderstanding of Darwin

On the 200th anniversary of Charles Darwin's birthday two myths persist about evolution and natural selection

By Michael Shermer on February 1, 2009



Credit: Matt Collins

On July 2, 1866, Alfred Russel Wallace, the co-discoverer of natural selection, wrote to Charles Darwin to lament how he had been “so repeatedly struck by the utter inability of numbers of intelligent persons to see clearly or at all, the self acting & necessary effects of *Nat Selection*, that I am led to conclude that the term itself & your mode of illustrating it, however clear & beautiful to many of us are yet not the best adapted to impress it on the general *naturalist public*.” The source of the misunderstanding, Wallace continued, was the name itself, in that it implies “the constant watching of an intelligent ‘chooser’ like man’s selection to which you so often compare it,” and that “thought and direction are essential to the action of ‘Natural Selection.’” Wallace suggested redacting the term and adopting Herbert Spencer’s phrase “survival of the fittest.”

Unfortunately, that is what happened, and it led to two myths about evolution that persist today: that there is a prescient directionality to evolution and that survival depends entirely on cutthroat competitive fitness.

Contrary to the first myth, natural selection is a description of a process, not a force. No one is “selecting” organisms for survival in the benign sense of pigeon breeders selecting for desirable traits in show breeds or for extinction in the malignant sense of Nazis selecting prisoners at death camps. Natural selection is nonprescient—it cannot look forward to anticipate what changes are going to be needed for survival. When my daughter was young, I tried explaining evolution to her by using polar bears as an example of a “transitional species” between land mammals and marine mammals, but that was wrong. Polar bears are not “on their way” to becoming marine mammals. They are well adapted for their arctic environment.

Natural selection simply means that those individuals with variations better suited to their environment leave behind more offspring than individuals that are less well adapted. This outcome is known as “differential reproductive success.” It may be, as the second myth holds, that organisms that are bigger, stronger, faster and brutishly competitive will reproduce more successfully, but it is just as likely that organisms that are smaller, weaker, slower and socially cooperative will do so as well.

This second notion in particular makes evolution unpalatable for many people, because it covers the theory with a darkened patina reminiscent of Alfred, Lord Tennyson’s “nature, red in tooth and claw.” Thomas Henry Huxley, Darwin’s “bulldog” defender, promoted this “gladiatorial” view of life in a series of popular essays on nature “whereby the strongest, the swiftest, and the cunningest live to fight another day.” The myth persists. In his recent documentary film *Expelled: No Intelligence Allowed*, Ben Stein linked Darwinism to Communism, Fascism and the Holocaust. Former Enron CEO Jeff Skilling misread biologist Richard Dawkins’s book *The Selfish Gene* to mean that evolution is driven solely by ruthless competition, both between corporations and within Enron, leading to his infamous “rank and yank” employee evaluation system, which resulted in massive layoffs and competitive resentment.

This view of life need not have become the dominant one. In 1902 the Russian anarchist Petr Kropotkin published a rebuttal to Huxley and Spencer in his book *Mutual Aid*. Calling out Spencer by phrase, Kropotkin observed: “If we... ask Nature: ‘who are the fittest: those who are continually at war with each other, or those who support one another?’ we at once see that those animals which acquire habits of mutual aid are undoubtedly the fittest.” Since that time science has revealed that species practice both mutual struggle and mutual aid.

Darwinism, properly understood, gives us a dual disposition of selfishness and selflessness, competitiveness and cooperativeness.

Darwin was born on February 12, 1809, the same day as Abraham Lincoln, who also struggled to reconcile our binary natures in his first inaugural address on the eve of the Civil War: “The mystic chords of memory, stretching from every battlefield and patriot grave to every living heart and hearthstone all over this broad land, will yet swell the chorus of the Union, when again touched, as surely they will be, by the better angels of our nature.”

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