

*Scientific “Facts”, Politics and Social Effects on the
Writing of Evolution*

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For many researchers as well as laymen, science and scientific research are often perceived to be objective endeavors that solely deal with facts, and somehow remain immune from societal trends and viewpoints. In reality however, these scientists and laymen underestimate the possible presence of subjectivity in the writing of science, as well as the effect that popular opinions place on scientists and their research. Dominant, nonscientific ideologies prevalent in a particular moment, such as Christianity, imperialism, and liberalism, can influence the questions asked, as well as the conclusions reached, in scientific research. Nonscientific socio-political actors and structures, including churches, media, and intellectuals, can also have similar effects. Indeed, socio-political pressures outside of the sphere of science have challenged scientists for centuries, particularly when researchers attempt to present ideas that are new, unconventional, or in conflict with prevailing scientific and public standards. In such instances, the borders between science and the court of public opinion can become quickly blurred. Scientists can be forced to adjust the ways in which they communicate knowledge, which consequently can exaggerate or dull the importance of their findings. Conversely, individuals outside of the scientific field can attribute social and political values to research never intended by the scientist. New meaning can be ascribed to scientific discovery. Under such pressures, science can rapidly transform into a site of not only objective discovery, but also opinion and public contestation.

To explore the tensions between scientific “fact” and public opinion, one must look no further than to the issue of evolution, or broadly speaking, the process in which a species develops, progresses, or declines over time. Beginning in the late-eighteenth century with the biologist Jean-Baptiste Lamarck and his belief in the “inheritance of acquired characteristics,” and continuing throughout the nineteenth century with both the naturalist Charles Darwin’s notion of natural selection as well as his colleague Alfred Russel Wallace’s theory of intelligent design, scientists altered and challenged one another’s

views concerning the evolution of the natural kingdom. (Carey 59) Increasingly, scientific debates on evolution, both inadvertently as well as intentionally, engaged with nonscientific questions concerning man, his development, and his relationship to the natural world. Shaped by the social and political ideologies of the age, scientific theories on evolution conversely drew the interest of social reformers and cultural commentators alike, including the writers George Bernard Shaw and Mark Twain. In comparing the varied writings of the aforementioned scientists and nonscientific audiences, this paper contends that writings on evolution blurred the boundaries between scientific fact and opinion, revealing the intrusion of societal pressures on the writing as well as reception of scientific research.

An early theory of evolution, one that to this day remains popular outside of the scientific community, was Jean-Baptiste Lamarck's notion on the "inheritance of acquired characteristics." (Carey 59) As outlined in his noted work *Zoological Philosophy* (1809), Lamarck believed that any organism possessed the ability to develop improved genetic traits, rid itself of unnecessary traits, and pass these traits onto later generations. Such traits were formed and acquired in direct response to the organism's environment. In a now classic passage, Lamarck argued that giraffes developed long necks and legs to reach the leaves of tall trees. An issue of willpower over environment, Lamarck outlined how the arid conditions of Africa forced the giraffe "to browse on the leaves of trees and to make constant efforts to reach them. From this habit long maintained in all of its race, it has resulted that the animal's fore legs have become longer than its hind legs, and that its neck is lengthened to such a degree that the giraffe, without standing up on its hind legs, attains a height of 6 meters." (Lamarck 59) Although Lamarck did not speak specifically about man, twentieth century social activists, faced with the realities of a Darwinian world, would later be attracted to the French biologist's belief that organisms possessed the ability to overcome detrimental conditions, and quickly looked to apply such theories to progressive movements, ideas we will return to in a few moments.

In contrast to Lamarck, Charles Darwin believed that evolution was a process in which organisms possessing dominant features held a better chance of surviving their environment than genetically weaker organisms. Described as natural selection, the ideas expressed in Darwin's book, *On the Origins of Species by Means of Natural Selection* (1859), challenged prevailing scientific standards, in one sense contending that environment, and not the organism, ultimately determined survival. In a further challenge of Lamarck, Darwin believed that organisms, including mankind, lacked the ability to control their own evolutionary process, let alone their group or species' development over time. In other words, survival was dependent upon an organism's innate genes, rather than the creature's own will or initiative to change. Mutations could also develop and ensure survival, yet were ultimately outside of the organism or species' consciousness. Environment, and with it competing organisms and fauna, randomly determined development and survival of a specific species.

Darwin's ideas on evolution not only were in contrast to the previous scientific findings of Lamarck, but were also shaped by the dominant social and political trends of the age. For example, Darwin's aforementioned theory of natural selection flew in the face of Christian teachings that emphasized man's dominance over the universe and its creatures. Equally disturbing was Darwin's insistence that man evolved from animal, rather than from God's hands and alongside animals. Fearful of inspiring social instability, and specifically fuelling the attacks of atheists and socialists against the church, Darwin reportedly refrained from publishing his research for many years. (Carey 114) Such trepidation could also explain why Lamarck, writing in an earlier period when church and religion held greater sway in society, remained quiet in extending his theories on the evolution of animals to humanity.

The conservative worldview that led Darwin to delay the release of *On the Origins of Species* also appears in his description of a native tribe encountered on Wollaston Island, the Fuegians. Throughout his writings, Darwin depicts the Fuegians in vividly racist language, concluding that,

These poor wretches were stunted in their growth, their hideous faces bedaubed with white paint, their skins filthy and greasy, their hair entangled, their voices discordant, and their gestures violent. Viewing such men, one can hardly make oneself believe that they are fellow-creatures, and inhabitants of the same world. It is a common subject of conjecture what pleasure in life some of the lower animals can enjoy: how much more reasonably the same question may be asked with respect to these barbarians. (Darwin 115)

Here Darwin repeatedly uses subjective expressions, such as “poor wretches,” “hideous faces,” “filthy,” “greasy,” “violent,” and “barbarians,” to describe the conditions of the foreign Fuegians. (Darwin 115) Although such expressions are offensive in our own era, Darwin’s racist language was inseparable from then contemporary discourses of British imperialism. For example, when debating Indian education policy in 1835, the British official Thomas Macaulay claimed, “All parties seem to be agreed on one point, that the dialects commonly spoken among the natives of this part of India, contain neither literary nor scientific information, and are, moreover, so poor and rude that, until they are enriched from some other quarter, it will not be easy to translate any valuable work into them.” (Macaulay) Likewise, the British writer Rudyard Kipling, in his 1899 poem “The White Man’s Burden,” explained how empires were responsible for bringing civilization to racially inferior colonial peoples. (Kipling) Darwin himself used similar imperialistic discourses to outline his evolutionary claims, describing a hypothetical process in which British plants would overrun New Zealand fauna. Here Darwin stated, “we may believe, if all of the animals and plants of Great Britain were set free in New Zealand, that in the course of time a multitude of British forms would become thoroughly naturalized there, and would exterminate many of the natives.” (Darwin 118-119) Darwin’s scientific ideas not only were shaped by the imperialistic endeavors of his age, they also could provide imperial powers a scientific justification for their exploitative and often times racist actions against colonial peoples.

Although Darwin's findings seemingly disproved Lamarck's "scientific facts," the idea of inherited genes remained a popular idea in public discourse at the turn of twentieth century. As mentioned earlier, social progressives, for example, who were interested in "the perfectibility of mankind" applied Lamarck's thoughts to man and not simply animals, contending that man possessed the willpower as well as the ability to improve oneself one's race. (Carey 59-60) The writer George Bernard Shaw himself proclaimed, "If you can turn a pedestrian into a cyclist, and a cyclist into a pianist or violinist, without the intervention of Circumstantial Selection, you can turn an amoeba into a man or a man into a superman." (Shaw 61) Here Shaw rhetorically embraced the logic of Lamarck's inherited genes theory. At the same time, Shaw would admit man's development was an uneven process, vulnerable to relapses or improvements that could occur unconsciously and over long durations of time, a claim that echoed the tenets of Darwinian evolutionary science. Nonetheless, by distinguishing between habit and inherited trait, and professing that man, both as a race and as an individual, could perfect oneself, the non-scientist Shaw and his Neo-Lamarckian perspective emerged as a useful foil against Social Darwinians. Whereas Darwin and his followers believed man and his genetic characteristics determined survival in a specific environment, the social reformer Shaw saw in man a creature with the agency to overcome his conditions. In this sense, Lamarckian "science" was revised for progressive propaganda.

Social Progressives such as Shaw were not the only actors troubled by Darwin's rejection of man's perfectibility. Scientists of a Christian-humanist bent, including the naturalist Alfred Russel Wallace in his *Man's Place in the Universe* (1903), acknowledged some aspects of Darwinian evolutionary theory, yet continued to propose theories that once again advocated for the primacy of man. Wallace's notion of intelligent design, as outlined by the writer Mark Twain, did accept Darwinian notions that man evolved from animals, just as it also contended that a creature's evolutionary

development was an uneven process. To a certain extent, Wallace and his selective engagement with Darwinian theory was understandable, since Wallace himself was an original cofounder of Darwinian evolution in 1859. (Carey 246) Nonetheless, Wallace deviated from Darwinian theories by emphasizing that evolution was not random or circumstantial. Rather, evolution followed a specific plan devised by an almighty creator, the endpoint of this evolutionary process being man. Although Wallace never identifies the almighty creator as a Christian God, intelligent design was nevertheless a theory quickly embraced by Christians, as evidenced in 1903, when a spokesperson for the Chicago Interior Presbyterian Church declared “for ourselves we do thoroughly believe that man, as he lives just here on this tiny earth, is in essence and possibilities the most sublime existence in all the range of non-divine being- the chief love and delight of God.” (Carey 246) Ridiculed in scientific circles, intelligent design lent a scientific tone to Christian advocates who believed man was created in God’s image and that the Earth was fashioned for man. More to the point, programs such as intelligent design and Shaw’s brand of social advocacy developed alongside one another in a specific historical moment. Each program revealed societal dialogues with Darwinian logic in which certain aspects of Darwinian science were incorporated yet ultimately subservient to long standing traditions of Christianity and progressivism.

Similar to Shaw and Wallace, Mark Twain was a writer, cultural commentator, and reformer of the late nineteenth and early twentieth centuries whose essays reflected an active engagement with Darwinian science. However, unlike his contemporaries, Twain found in Darwinian science a mechanism to question the socio-political traditions of his era. The spectre of Darwin is perhaps best evidenced in Twain’s sardonic attack on Wallace’s aforementioned intelligent design thesis, entitled “Was the World made for Man?” As the title implies, Twain sarcastically assaulted those scientific and social actors who advocated for man’s primacy over the universe. Echoing many of the criticisms that I have developed in this paper, Twain questions the scientific “fact” that man was the center of the

universe, stating that scientists and theologians “believe the world was made for man, I believe it likely that it was made for man; they think there is proof, astronomical mainly, that it was made for man, I think there is evidence only, not proof, that it was made for him.” (Twain 246) Linking theologian and scientist, as he does in the beginning of the essay, and distinguishing between the notion of evidence and proof, Twain, unlike the aforementioned essayists, clearly articulated the problematic connectedness between science and socio-political pressures. Nonetheless, Twain reaches such conclusions through Darwinian theories of evolution, ideas that, as we have already seen, were shaped themselves by the socio-political pressures of British imperialism. Accepting that evolution was a random process, an idea promoted by Darwinian science, Twain scorned the idea that the evolutionary creation of the Earth was made with man solely in mind, and stated:

Man has been here 32,000 years, that it took a hundred million years to prepare the world for him is proof that that is what it was done for. I suppose it is. I dunno. If the Eiffel towers were now representing the world’s age, the skin of paint on the pinnacle-knob at its summit would represent man’s share of that age and anybody would perceive that skin was what the tower was built for. I reckon they would, I dunno. (Twain 250)

With his analogy to the Eiffel Tower, Twain to a certain extent reflects the growth of Darwinian ideas in society, and embraces Darwin’s emphasis on circumstance to question Christianity and the idea that an intelligent God created man.

Throughout this paper, I have sought to show how, regardless of the moment, scientific research and socio-political ideologies, such as Christianity, imperialism, and progressivism, are seemingly intertwined. Although scientific research may not always fully emulate such socio-political ideologies, societal pressures nonetheless can influence scientific endeavors, both conceptually and ontologically. Throughout the aforementioned essays by scientists and nonscientific audiences alike, it is increasingly difficult to distinguish between scientific fact and public opinion, particularly concerning an issue as controversial as evolution, which inevitably addressed man’s relationship with the environment and

man's role in the larger evolution process. Moreover, communicating "scientific fact" often is a subjective process, one that touches upon the individual actor's personal beliefs, experiences, and biases, as we have seen in the case of Darwin. Likewise, when social or cultural actors either approvingly or dismissively engaged with Darwinian science, they subjugate certain aspects of Darwinian logic according to their own perspective, as seen with George Bernard Shaw's advocacy of social progressivism, Alfred Russel Wallace's belief in intelligent design, or Mark Twain's assault on man's supremacy of the universe. Others such as Shaw, discouraged by Darwin's emphasis on circumstance, turned to outdated or disproven scientific arguments, including Lamarck's belief in acquired traits, for socio-political purposes. In total, debates on evolution provide a warning to the scientist as well as the layman, exposing the shortcomings of scientific "truth," and blurring the lines between fact and opinion.

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A leading social science journal, The ANNALS of the American Academy of Political and Social Science, takes a deep dive into the debate by devoting its March issue (subscription required) to “The Politics of Science.” In fact, they found that ideology usually wins when the two are in direct conflict in a voter’s mind. Another way to look at the interplay of politics and science is to examine how people react when faced with so-called dissonant scientific messages—information that doesn’t fit with their worldview. “Many students lack good models for teaching evolution in public schools” because they didn’t get good instruction on the topic, the researchers write. Future teachers also need a better grounding in what the researchers call “the nature of scientific inquiry.”