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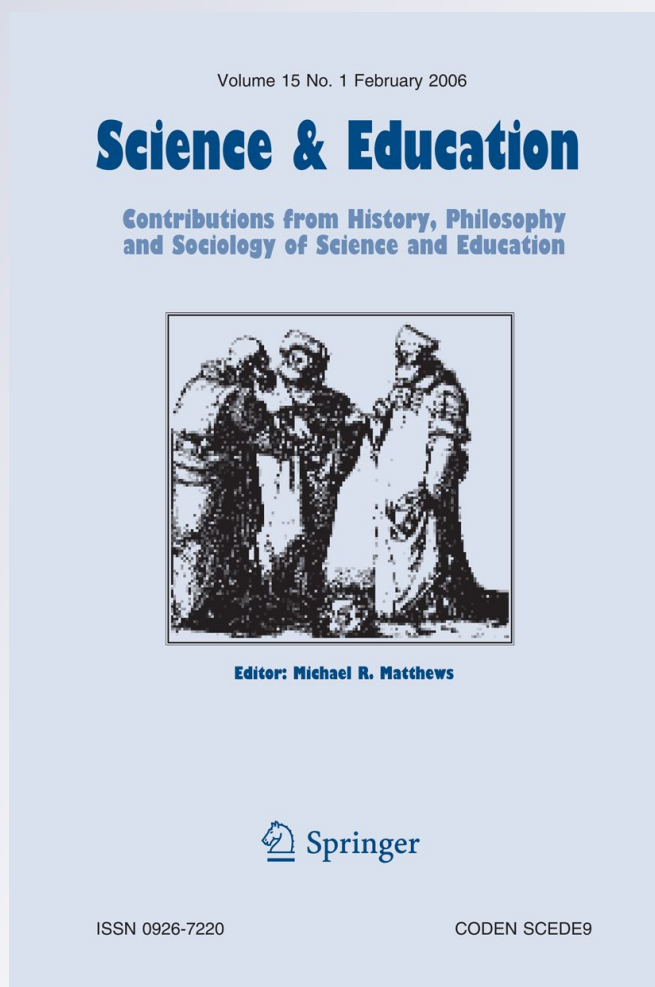
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Dennis R. Alexander and Ronald L. Numbers (eds):
Biology and Ideology: From Descartes to Dawkins

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Science has always strived for objectivity, for a “view from nowhere” that is not marred by ideology or personal preferences. That is a lofty ideal toward which perhaps it makes sense to strive, but it is hardly the reality. This collection of thirteen essays assembled by Denis R. Alexander and Ronald L. Numbers ought to give much pause to scientists and the public at large, though historians, sociologists and philosophers of science will hardly be surprised by the material covered here.

As a matter of historical record, the sciences have always been involved in ideological disputes, sometimes battling against anti-scientific ideologies (as with today’s creationism) or being used for nefarious ideological purposes themselves (as with the infamous episode of eugenics in early twentieth century America). Peter Harrison, in his essay on the cultural authority of natural history in early modern Europe, makes the point very clearly that advocates of the emerging sciences defended their novel, anti-Aristotelian approach in part on the basis that it was more conducive to a traditional humanistic education. For instance, insect metamorphosis was interpreted as analogical to the Christian belief of a resurrection of the body after death. And the ideological entanglement wasn’t only with religion, but extended to politics as well. As Harrison points out, Milton declared that the organization of ant colonies was a naturalistic sanction of parliamentary democracy! Of course, that game can be played by both sides, so it is not surprising that later in the same century the Whig John Edwards—who supported the monarchy of William and Mary—used bee colonies as indicative of the goodness of female monarchy (it is not clear where one could find William’s alter ego among bees, but never mind the details).

These days biology, particularly through the Darwinian theory of evolution—is taken to have dealt (again) a mortal blow to theology (more on this below), and “New Atheist” Richard Dawkins likes to claim that he considers himself a Son of the Enlightenment. And yet, as recalled by Shirley Roe in her chapter on biology, atheism, and politics in eighteenth century France, the father of that movement, Francois-Marie Arouet de Voltaire, famously spent quite a bit of his time refuting atheism on the ground that no atheistic society could be moral. Indeed, at one point, in answer to a letter from a correspondent he wrote:

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“My dear Marquis, there is nothing good in atheism. This system is very bad in physics and in morals. An honest man can protest strongly against superstition and fanaticism; he can detest persecution, he renders a service to the human race if he spreads human principles of toleration; but what service can he render if he spreads atheism?” (Ch. 2, p. 51).

Perhaps the interaction between biology and ideology is never more clear when it comes to issues of race. Sujit Sivasundaram, in the chapter on race, empire, and biology before Darwinism, makes it clear that it isn't always (perhaps even mostly?) the Right that misuses science in pursuit of its agendas. While supporters of colonialism relied on the new biology to argue that races could be “improved,” and that therefore it is both natural and good that a “superior” colonizer imposes its ways on the “inferior” colonized, it turns out that the abolitionist movement itself was built on the assumption that there is in fact a hierarchy of civilizations, and guess where British Christians come out in that ordering structure? Even phrenology, which today is rightly considered a pseudoscience, was advocated by scientists with a liberal bent, because many of its exponents were influenced by the British abolitionist movement.

Perhaps one of the most intriguing contributions to this collection is the one by Nicolaas Rupke on “Darwin's choice.” Most biologists today would argue that Darwin's chief opponent was the supernaturalism espoused by the natural theology of William Paley and the like, that Darwin was the first to bring biology into the fold of science, finally overcoming a pre-scientific worldview wedded to increasingly anachronistic notions of intelligent design (which had already been demolished on philosophical ground by David Hume, several decades before the appearance of Paley's influential *Natural Theology*, 1802/2008). But it turns out that this received view is the result at least in part of Darwin's own conscious plan to entirely sidestep any *scientific* alternative to his theories. And such alternatives did exist, as much as they are almost forgotten now.

At the same time that Darwin and Wallace were revolutionizing the English speaking scientific world, German scientists were enthralled by the theory of autogenesis, which concerned the possibility of spontaneous (non divine) origin of species. According to its supporters, species came about by spontaneous aggregation of elemental “germs” (this, incidentally, is *not* the well known, and empirically groundless theory that was debunked by Louis Pasteur). The point isn't that autogenesis would have been a better candidate than Darwinism to explain evolution. The idea is that Darwin chose not to engage a large existing scientific literature and cast himself instead as the defender of scientific rationalism against the religiously based natural theology. It was a smart move, because it quickly rallied many autogenicists to the common cause, and rapidly made convert of them to the Darwinian worldview. Rupke goes so far as to suggest that Darwin's pointed dismissal of the whole question of the origin of life has actually delayed by many decades any progress in that area of inquiry. I am not quite so sure, but it is a possibility worth considering.

Eugenics is, of course, the historian and philosopher of science's favorite whipping boy when it comes to warning about the perils of entanglement between science and ideology. It is therefore no surprise to see here a contribution by Edward Larson on biology and the emergence of the Anglo-American eugenics movement. What *is* surprising is to be reminded of both the damage perpetrated and the high level of endorsements gathered by the eugenic movement in the UK and the US.

I wonder how many contemporary biologists realize, for instance, that the 1933 Nazi Law for the Prevention of Genetically Diseased Progeny was modeled on a eugenic law that forced sterilization of the feeble minded passed in California. Or that eugenic statutes remained on the book in the United States until the 1960s, by which time more than 63,000

Americans had been forcibly sterilized. And the list of prominent biologists endorsing and sometimes vociferously defending eugenics reads like a who's who of early twentieth century biology. It includes August Weismann, Karl Pearson, William Bateson, Hugo de Vries, Thomas Hunt Morgan, Ronald Fisher, J.B.S. Haldane, and Sewall Wright, among others. If that doesn't shake your confidence in scientists' ideological neutrality I don't know what will. Of course, politicians promptly followed suite, with Presidents Theodore Roosevelt, Woodrow Wilson, and Calvin Coolidge all endorsing eugenic measures.

Michael Ruse, whose writings seem to appear in every noteworthy collection of philosophical essays (full disclosure: he has a chapter in a book I'm co-editing for Chicago Press about the Philosophy of Pseudoscience), contributed a provocative entry on evolution and the idea of social progress. These days it is highly unfashionable among evolutionary biologists to talk about progress, except in the factually obvious sense that the biosphere has become more complex through time (which Stephen Gould (1996) famously attributed to a simple "left wall" effect: if you start simple, the only way you can possibly go is toward complex). But it wasn't like that until relatively recently.

As is well known, evolutionary ideas were the buzz well before Charles Darwin—from Erasmus Darwin's *Zoonomia* (1794–1796) to the anonymously published *Vestiges of the Natural History of Creation* (1844, actually written by Scottish journalist Robert Chambers). What is less well known is that pre-Darwinian evolutionists were considered a bunch of cranks and their ideas pseudoscientific. (Ruse notices that the concept of pseudoscience within this context is not an anachronism: it was used by physiologist Francois Magendie in 1843, and anti-pseudoscience investigation goes back at least to 1784, when King Louis XVI of France convened a special team that included Benjamin Franklin and Antoine Lavoisier to investigate—and debunk—the then popular “mesmerism.”).

It is hard to think of evolution as a pseudoscientific concept, but as Ruse aptly puts it: “Given [the] sense of opprobrium felt toward evolutionary thinking, the best term to use to refer to such thinking before Darwin is ‘pseudo-science.’ This captures both the odor of fanaticism about the supporters and about the critics, and the stench of non-respectability, relished by supporters and hated by critics.”

After Darwin (and Wallace) cleared things up and made evolution a respectable scientific concept, the situation became interesting again during the early twentieth century, when a number of biologists were working to come up with what is now known as the Modern Synthesis, the standard model of evolutionary biology. A strange thing happened, following Ruse's reconstruction of the thinking and writing of the architects of the Synthesis. On the one hand, pretty much all of them were ardent believers in the idea of progress: Fisher thought that God had created organisms progressively through natural selection (a line of thinking that led him to support the eugenic movement, to avoid the decline of the human race); Dobzhansky was an enthusiastic supporter of the idea of progress (again informed by his religious beliefs); and Ruse describes Simpson as “fanatic” about both biological and cultural progress. On the other hand, none of this shows up in any of these people's technical writings: it's all confined to their essays for the general public. Moreover, the only architect of the Synthesis that did incorporate the notion of progress in his technical book, Julian Huxley, was shunned, harshly criticized, and penalized in terms of his scientific career (grants denied, negation of the editorship of a new journal on evolution). What was going on?

As Ruse provocatively puts it: “They had all taken in the message that successful science, mature science, epistemic science, professional science, is culture-value free,” which means that they couldn't risk injecting what they must at some level have perceived as ideology—their belief in progress—into their science, at least not in front of their peers.

But it was okay to wax poetic about progress with the general public, thereby indirectly giving the impression that progress and evolution went hand in hand. It sounds a lot like the increasingly annoying tendency of some contemporary physicists to write about the compatibility of science and religion, and sometimes even more or less explicitly endorse some version of intelligent design (usually in the guise of the anthropic principle)—in their non-technical writings only, of course. As a bonus, contemporary scientists can have a shot at the hefty Templeton Prize, which was not established when Dobzhansky, Simpson and Fisher were writing.

While most of the Alexander-Numbers volume is historical in nature, the last chapter, an essay by Alister McGrath on the ideological uses of evolutionary biology in recent atheistic apologetics, delivers on the subtitle of the book, “from Descartes to Dawkins” (though the latter gets mentioned 100 times in the volume, against only 44 for Descartes). McGrath’s contention is that “Darwinism” is now being used by the New Atheists—chief among them Dawkins—precisely in the way creationists have always said it would be: as an all-encompassing anti-theist ideology, rather than a scientific theory. My direct experience blogging and counter-blogging with some of the New Atheists tells me that he is precisely right, unfortunately.

McGrath states that “one of the most interesting developments of the twentieth century has been the growing trend to regard Darwinian theory as transcending the category of provisional scientific theories, and constituting a ‘worldview.’ [...] Dawkins goes further, insisting that it is to be seen as an explanation of things. Darwinism is a worldview, a grand recit, a metanarrative—a totalizing framework, by which the great questions of life are to be evaluated and answered.” McGrath rightly asks whether biologists would rather prefer their theory to be compared to, say, Einstein’s relativity, or to Marxism, a question that arches back to several other chapters in the book where in fact Marxism and Darwinism have been characterized by a tangled history (for instance in the Soviet Union before and during the infamous Lysenko affair, as detailed in the chapter by Nikolai Krementsov on Darwinism, Marxism, and genetics in the Soviet Union).

For McGrath Dawkins moves a bit too quickly from the reasonable statement that there is nothing in Darwinism hinting at the necessity or presence of purpose in life to the much more philosophically debatable stronger position that there indeed is no purpose in life. I must add immediately that I agree with Dawkins’ conclusion, but by a different and—I think—more defensible route. For me modern science (not just evolutionary biology, but also physics) has progressively taken away most of the gaps in human knowledge that were once filled by the concept of gods. This empirical encroaching on the divine, coupled—crucially—with the philosophical untenability of the idea of a god-given purpose, or even a god-given morality (as Plato beautifully demonstrated in the *Euthyphro*), does imply that purpose is a human invention, something that is made by humans for humans. But this conclusion is arrived at by a combination of science and philosophy, what used to be called “scientia,” or knowledge in the broader sense (including science, philosophy, logic, and mathematics). It is not *science* that defeats “the god hypothesis,” it is scientia. And it is a disservice to science, and to evolutionary theory in particular, to pretend otherwise.

The message of the Alexander-Numbers book should be loud and clear: science has always been, and very likely always will be, entangled with ideology. This is because science, as Helen Longino (1990) put it in her *Science as Social Knowledge*, science is an irreducibly social activity, and as such it reflects the many, not always positive, ways in which people interact. Science of course is also a pursuit of knowledge, and knowledge is power, according to Francis Bacon, and therefore not too far removed from politics and ideology. Actually, that famous Baconian phrase happens to fit very well with this

discussion, as the original sentence, in Latin, was “scientia potestas est” (found in the *Meditations*, 1597). Problem is, Bacon wrote that within the context of a discussion of heresies denying the power of God, so that some commentators actually think that it should be translated as “knowledge is His power.” Science and religion, deeply entangled right in the writings of the man who is credited for having laid out the basis of the modern scientific method by rejecting the Aristotelian approach.

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