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What Makes Us Moral?

Crossing the Boundaries of Biology

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The moral consequences of Darwinism

Man with all his noble qualities, with sympathy which feels for the most debased, with benevolence which extends not only to other men but to the humblest living creature, with his god-like intellect which has penetrated into the movements and constitution of the solar system – with all these exalted powers – man still bears in his bodily frame the indelible stamp of his lowly origin.

Darwin, *The Descent of Man*

In 1859, Charles Darwin published a book that sparked off a revolution. In that book, *The Origin of Species*, Darwin set out his theory of how the tremendous variety of plants and animals we observe around us came to be. Darwin's theories challenged many of our most fundamental views, our most cherished fantasies, not only about religion – though that was what captured many people's attention, and still continues to receive a disproportionate amount of space – but especially about humanity, its powers, and its place in the natural world. We have yet fully to come to terms with the Darwinian revolution, to gauge the extent of its implications for human life, and especially its implications for morality.

In *The Origin of Species*, Darwin carefully avoided much mention of humanity. Perhaps he felt that placing humanity at center stage of his story risked inflaming passions too much, or would prove too threatening to an audience among whom Biblical Creationism was still a

widely held belief. But his audience did not miss the fact that Darwin's theories applied to human beings as much as to any other animal. Darwinism was widely rejected, then as now, because of its implications for the concerns which most of us hold dearest.

What was Darwin's theory, and why was – why *is* – it so widely regarded as threatening to our conception of humanity and to morality? We need, first of all, to have a clear picture of Darwinian natural selection before us, so that we can begin to grasp the extent to which it requires us to rethink our notions of ourselves as moral beings.

Descent with modification

Contrary to popular belief, Charles Darwin did not invent the notion of evolution. There had been theories of evolution before Darwin, including one propounded by his grandfather, Erasmus Darwin. Charles's innovation was not in proposing that life on earth was the product of natural selection, but in providing a convincing case for a particular mechanism of evolution.

Darwin began by noting, following the work of Thomas Malthus, that, all other things being equal, populations would increase exponentially. The average animal, of a given species, may give birth to dozens of offspring. If they all survive, and go on to have the same number of offspring themselves, generation after generation, the area will soon be swamped (if we begin with just two animals, and each of them have two offspring, and so on, we will have over two million animals in a mere twenty generations). Obviously, these kinds of numbers would soon become unsustainable. In fact, much lower numbers are usually unsustainable: an area can support only a small population of the animal in question. Typically, Darwin saw, most of the animals born must fail to survive long enough to reproduce. Whether they are aware of it or not, the animals are all in competition with each other for the resources they need to survive.

But which animals die and which live to have offspring of their own? Is it all just a matter of chance? Chance certainly plays a role, in the individual case, but averaged out over many organisms, its importance plummets. Animals which are better suited to their environment are

more likely to survive than those that are less well suited (less "fit"). If all the offspring of a given pair are exactly the same, then they will all be equally fit. But they never are *exactly* the same. Instead, there are small differences between them. One is bigger, another is faster, a third brainier, and so on. Thus there are minute fitness differences between them. This gives some an (usually very slight) advantage over others.

This gives us two of the preconditions for evolution: competition between members of the same species, and (usually small) differences that give some of them an edge in the competition. We need to add one more: differences must be *heritable*. That is, offspring must tend to resemble their parents. If this is the case, then the initial small advantages can gradually accumulate. If, for instance, an animal has an advantage over its conspecifics (members of the same species) because it is faster, and therefore more likely to survive, its offspring will tend to inherit its speed. Indeed, given the small random variations we expect to find among offspring, some will probably be faster still. And their offspring will be faster again. If speed remains relevant to survival (perhaps because the animals are preyed upon by a speedy predator), we can expect the proportion of fast animals to increase. Eventually, only speedy animals will be born. In this case, however, since the competition is always continuing, there might be selection pressure for still faster animals.

If this process goes on long enough, and enough traits are altered through it, later generations of animals will come to be quite different from the first generation. Sometimes, one species of animal gives rise to different lineages, which diverge from one another so dramatically that they can no longer interbreed. If this happens, a new species has come into being. Darwin saw that, given enough time, all the resulting diversity of species we see could be the outcome of such *speciation* events. We are all – humans and clams, elephants and bacteria – descended from the same, very simple, ancestors.

Darwin's theory of descent with modification gradually displaced all previous evolutionary hypotheses. It is worth mentioning one of its competitors, if only because it is still frequently confused with the Darwinian account. According to *Lamarckism* (the theory proposed by the eighteenth-century naturalist, Jean-Baptiste Lamarck), the inheritance of acquired characteristics is the driving force of evolution.

During the course of their lifetime, animals acquire many abilities and physical features; Lamarck's theory was that such acquisitions might be passed on to their offspring. Thus (to give the classic example), each generation of giraffes acquires a slightly longer neck as a result of stretching to reach the leaves at the tops of trees. Darwin himself did not rule out some kind of Lamarckism altogether, but most Darwinians give it no credence at all. The problem is that there is no mechanism whereby acquired characteristics can be inherited. Inheritance is a function (largely) of genes, and my genes don't change when I do. There are non-genetic means of inheritance – most obviously, but not limited to, the cultural inheritance that is characteristic of human groups – but they are not the driving force of evolution. It is random variation, and not acquired characteristics, which accounts for the diversity of life.

We can no longer doubt that Darwin's theory was, in its broad outline, correct. Darwinian evolution, together with Mendelian genetics, which supplied the theory of heritability which Darwinism lacked (and which we shall consider further in chapter 5), provides the explanatory framework within which all of biology must be understood. As the influential biologist Theodosius Dobzhansky put it, "Nothing in biology makes sense except in the light of evolution." Yet evolution is still widely condemned, with a moral passion normally absent from debates over scientific hypotheses. What accounts for this resistance, stubbornly continuing from Darwin's day to our own?

Denying Darwin

One of Darwin's contemporaries (the wife of the Bishop of Worcester) is reputed to have said of his theory "Descended from monkeys? My gracious, let us hope it isn't true. But if true, let us hope it doesn't become more widely known."³ Darwinism, as both its most passionate opponents and vigorous defenders agree, is *dangerous* (not for nothing did Daniel Dennett, an American philosopher, and enthusiastic Darwinian, call his recent book *Darwin's Dangerous Idea*). But whence the danger – or at least the perception of it?

It is common to suggest that opposition to the theory of natural selection is motivated by religious fundamentalism and nothing more.

Of course, blind allegiance to religious tradition is often an important factor in the still widespread rejection of Darwinism. If, as Darwin suggests, all life has evolved from a single common ancestor, then the biblical account, according to which God created each animal in its current form, must be false. In the face of this evidence, sophisticated believers have resorted to some now familiar means to reconcile their faith with evolution. They have, for instance, interpreted the creation story as an extended metaphor, rather than as literal truth. But the greater the plausibility of evolution, the less there seems to be for God to do: the more superfluous his very existence. Like the French mathematician and astronomer Laplace, responding to Napoleon's query about the place of God in his cosmology, we can say that we have no need for that hypothesis.

In any case, it is a mistake to think that opposition to evolution comes only from misinformed, or wishfully thinking, religious bigots. On the face of it, Darwinism is a threat not just to religious verities, but to our most fundamental conception of ourselves as autonomous beings, able to choose between alternatives guided by notions, not merely of the expedient, but also of the good and the right.

It might even be that much of the apparently religious opposition to evolution is motivated, at base, by concerns that are fundamentally moral, even humanistic. To suggest we are descended from monkeys seems to attack our cherished notion of humans as autonomous beings. If we are the products of evolution, then we too came to be simply as the result of billions of years of slow accumulation of tiny modifications.⁴ There was nothing inevitable about our existence; evolution did not aim to produce us, and we are not, from its point of view, its flower or culmination. Moreover, we came to have the characteristics we possess because they are useful, (or were useful to our ancestors) not because they are ennobling. This is an unpromising mechanism from which to produce the godlike creatures we take ourselves to be. It seems more likely to produce modified apes than imperfect angels.

Hence the fact that evolution is widely seen as having deflationary implications. We think we're special, created in the image of the Deity, or possessed of transcendent powers (of free choice, for example). In fact, we are just one species among many. We think we are seekers after truth,

engaged in the pursuit of the good, the right and the beautiful whereas our desires and cognitive powers are merely adaptations for survival. Above all, we think we're moral, the only truly moral animals, but nothing marks us out as special or different (or no more different than any other species) members of the animal kingdom. Our vaunted morality is itself the product of genetic selfishness, one more means whereby we propagate ourselves. It is the apparent deflationary power of Darwinism that, I believe, explains the vehemence of the opposition to it, as intense now as when it first appeared in nineteenth-century England.

In what ways, precisely, might Darwinism threaten to undermine morality? Firstly, it might be that Darwinism shows that morality isn't *real*. We believe that there are binding moral obligations upon us, but, in fact, there are not. We are merely "programmed" (by evolution) to think that there are. Religion might be an appropriate analogy. A number of scholars think that humans are innately religious: that we have a built-in tendency to believe in God.⁵ But (many of them say) there is no God: God, and morality, is an illusion induced by evolution. Evolution thus undermines moral *realism*.

Secondly, evolution might show that it is unrealistic to expect people to obey moral injunctions. Perhaps there really is a morality; perhaps we really ought to take everyone's interests into consideration, turn the other cheek, and do unto others as we would be done by. But we might be too selfish to be able to live by this code. Evolution might have implanted self-seeking motives in us that are stronger than any moral motives we can range against them. On this view, evolution does not undermine moral realism; rather, it shows that humans are naturally too selfish to possess the requisite moral *motivation*.

Finally, it may be that evolutionary theory has some surprising lessons for us regarding the *content* of morality. It might teach us that there is a morality, which is binding upon us and which we can reasonably be expected to obey, but that that morality is quite different than we commonly believe. Proponents of this view hold that many of the actions we regard as moral are in fact *immoral*, and many of those that seem to be mere selfishness are in fact morally right.

The evolutionary attacks upon moral realism and moral motivation have captured most attention in recent years. In the early days of Darwinism, it was the third threat (as it was seen by opponents of

evolutionary ethics) that took center stage. Some Darwinians took the theory to have important implications for the content of morality, while anti-Darwinians saw in the theory no more than an apology for selfishness and greed, under the guise of science. It is this third version of the evolutionary attack upon morality that we shall consider in this chapter. Examining this early critique of conventional morality will help set the stage for the contemporary debate, with which much of the rest of this book is concerned.

Darwin's defenders

Darwin had no taste for polemics. Fortunately for him, he had an able champion in Thomas Henry Huxley, who described himself as "Darwin's bulldog." It was Huxley who proselytized on behalf of evolution and who defended it against its many opponents. When, in 1860, Darwinism was discussed at a meeting of the British Association in Oxford, it fell to Huxley to put the case for evolution, against the skilful debating of Samuel Wilberforce, Bishop of Oxford. According to one, possibly apocryphal, account of what happened that night, Wilberforce mockingly inquired of Huxley whether it was on his mother's or his father's side that he was descended from a monkey. "I am not ashamed," Huxley replied, "to have a monkey for an ancestor, but I would be ashamed to claim descent from a man who used his great gifts to obscure the truth."⁶ Whether this account is entirely false or merely embellished, from then on Huxley's name and fortune were irrevocably linked with Darwin's.

Darwin had another defender in Hebert Spencer. Spencer, a philosopher and sociologist, is today largely forgotten, but during his lifetime he enjoyed the rare combination of intellectual respectability and popular success. His books were best-sellers, and his ideas were taken very seriously. Spencer was as much an evolutionary theorist in his own right as a defender of Darwin (with whom he disagreed upon some points). His own theory of evolution predated the appearance of *The Origin of Species*, and placed greater emphasis on Lamarckian mechanisms than upon natural selection. After the publication of Darwin's work, however, the two theories intertwined, at least in

popular consciousness. It was Spencer, not Darwin, who coined the famous phrase "the survival of the fittest," which still sums up natural selection in the minds of many people. Darwin endorsed the phrase by adopting it in later editions of *The Origin*.

Between them, Darwin's two eminent defenders were largely responsible for the triumph of evolution over its enemies. Thanks, in no small part, to their tireless work on its behalf, the fact of evolution was accepted by most biologists, and by an increasing number of people outside the sciences, within a couple of decades of the publication of the *The Origin* (ironically, however, the mechanisms Darwin proposed to explain evolution were almost as widely rejected until well into the twentieth century, when Mendelian genetics filled in the details of inheritance and vindicated natural selection). However, for all they had in common, Darwin's defenders had radically opposed views on the moral implications of evolution.

Despite the apparent glee he took in his defeat of Wilberforce, Huxley found evolution almost as troubling a doctrine as did the bishop. For many anti-Darwinists, natural selection is a doctrine of selfishness and cruelty, elevated to the status of a worldview. Darwinism, they believe, celebrates the survival of the fittest, and despises those who fall behind in their wake, and this alone is sufficient reason to reject it as an account of human history. Huxley agreed that if evolution were a complete explanation of human behavior, including our moral behavior, then it would have the immoral consequences the anti-Darwinists feared. Unlike Wilberforce, however, Huxley had no doubt that natural selection was true.

Huxley, like those today who agree with him regarding both the truth of natural selection, and its immoral implications, faced a dilemma. He could either give up on morality, at least as it had traditionally been conceived, or he could reject the sway of evolution over morality. Huxley emphatically chose the latter. It is probably true, Huxley admitted, that our moral sentiments are a product of natural selection. But, by the same token, so are the *immoral* sentiments, of which so many people give so much evidence. So far as natural selection itself is concerned, they are on a par: just two different kinds of survival strategies. We cannot decide which is better, higher, more worthy, by reference to natural selection itself:

The thief and the murderer follow nature just as much as the philanthropist. Cosmic evolution may teach us how the good and the evil tendencies of man may have come about; but, in itself, it is incompetent to furnish any better reason why what we call good is preferable to what we call evil than we had before. Some day, I doubt not, we shall arrive at an understanding of the evolution of the aesthetic faculty; but all the understanding in the world will neither increase nor diminish the force of the intuition that this is beautiful and that is ugly.⁷

Morality, Huxley appears to be claiming, is a realm independent of evolution. The conclusions of biology may be true, but their truth has no moral implications at all.

Huxley suggests that we make the mistake of thinking that evolution has moral implications due to a confusion concerning the meaning of "fitness." We have an unfortunate tendency to suppose that "fittest" means "best." But this is an error. "Fittest" is a technical term in evolutionary theory, and simply means "most likely to survive and reproduce;" it has no other implications. The products of natural selection *might* be good, as well as fit, but their goodness, if any, is unrelated to their fitness. More often, indeed, the products of evolution will be just what the opponents of Darwin feared: bloody and cruel, truly "nature, red in tooth and claw" (as Tennyson put it). Morality is far too important either to abandon, or to remake in the image of natural selection. Instead, Huxley argued, morality requires *opposing* natural selection, not as a scientific theory, but as a social and moral doctrine: "Let us understand, once for all, that the ethical progress of society depends, not on imitating the cosmic process, still less in running away from it, but in combating it."⁸ Far from modeling morality on the process of natural selection, Huxley argued that we ought to oppose evolution in the name of morality.

Huxley's vision of the ethical implications of Darwinism, and the consequent importance of combating it in the social realm, if not in the scientific, lives on today in the work of several prominent biologists. For George Williams, one of the most important evolutionary theorists of the last few decades, Huxley was wrong only in that he did not go far enough. He did not, Williams argues, realize just how thoroughly bad nature is, and therefore did not emphasize sufficiently the need to combat it in all its manifestations including the effects it has had on

our nature.⁹ But it was not Huxley's view of the moral implications of Darwinism that was to win out in the minds of scientists, and of the broader population, it was Spencer's.

For Spencer, unlike Huxley, evolution had a moral message. For him, evolution was the story of progress. Evolution had within it an intrinsic drive toward complexity; a natural movement from simpler to more complex creatures. Thus, human beings, as arguably its most complex products, are the pinnacles of evolutionary achievement. Given that evolution is a progressive force, Spencer suggested, human beings ought to do everything possible to foster it, and we can best do that by ensuring that social conditions are suited to allowing it to do its work. If we attempt to interfere with its workings, it will be us, and our descendants, who will suffer.

For Spencer, evolution was best summed in his famous phrase, "the survival of the fittest." Those who prosper, those who win in the evolutionary competition, are those who are best equipped for life's struggles. Evolution is therefore a device for sorting out the best products of nature, and rewarding them for their abilities. In the process, a great many organisms – from unicellular bacteria to people – fall by the wayside. This is a regrettable, but inevitable, consequence of progress. It is not a side-effect that we can hope to avoid, because it is only by allowing the imposition of penalties on the unfit that we can hope to reap the rewards of evolutionary progress. If, for instance, we take steps to diminish the suffering of those who lose out in the evolutionary competition, we risk aiding the survival of the *unfit*. Those who, without assistance, would have died without progeny will instead survive and reproduce. The number of the unfit will increase; as a result, the burden upon the next generation will be that much the greater. To assist, out of misguided compassion, the weak, the foolish and the congenitally criminal, to cushion them from the worst consequences which flow from their behavior, is to interfere with the processes of nature, and to prepare for the next generation greater social ills, in the form of the degenerate progeny of these unfortunates: "To aid the bad in multiplying, is, in effect, the same as maliciously providing for our descendants a multitude of enemies. It may be doubted whether the maudlin philanthropy which, looking only at direct mitigations, ignores indirect mischiefs, does not inflict more misery than the extremest

selfishness inflicts."¹⁰ Since evolution has a direction, since its natural tendency is progressive, we have a duty to assist in its processes, or, at very least, to refrain from interfering in them. Nature is a well-ordered machine for sorting the worthy from the unworthy, and we impede its mechanism at the peril of ourselves and our children.

For Spencer, evolution was not merely a biological process that explained how we came to be the kind of creatures we are. It was also a political and a social model for us to follow. It contained within it the outlines of a good polity, and it produced all that was valuable. A good society was one in which each person was encouraged to pursue their own selfish ends, because as a result benefits accrue for the entire society.

Spencer's doctrine was one that was immensely attractive to those people who could see themselves as the winners in life's competitions. It flattered their egos, since it identified them with the fittest beings, and it provided a handy rationale for their activities. Wealthy industrialists like Andrew Carnegie fêted Spencer, and espoused his views, for they saw in them a justification for the capitalism that had enriched them. It was Spencer to whom Carnegie referred, in explaining why capitalism was inevitable and proper: "The law of competition, be it benign or not, is here; we cannot evade it; no substitutes for it have been found; and while the law may be sometimes hard for the individual, it is best for the race, because it ensures the survival of the fittest in every department."¹¹ In a similar vein, John D. Rockefeller invoked Spencer when he told a Sunday School class that "the growth of a large business is merely a survival of the fittest [...] This is not an evil tendency in business. It is merely the working out of a law of nature."¹² Darwinism, at least as seen through the eyes of Spencer, seemed to vindicate capitalism at its most ruthless.

To be sure, Spencer's view had its more benevolent side. If the evolutionary process is to do its work properly, if the truly deserving are to be rewarded, and only those who are truly unworthy to be punished, then it must operate upon a level playing field. Evolution teaches us that we must never interfere with the workings of natural processes, but, by the same token, it justifies interference when it is aimed solely at undoing the ill effects of previous meddling. Though organized charity was anathema to Spencer, individual philanthropy might have benign

effects, if well targeted. The poor could be divided into two classes: the undeserving poor, who found themselves at the bottom rung of the social ladder due to their inferior inherited capacities; and the deserving poor, who had suffered misfortunes or injustices, and whose rank did not, therefore, reflect their capabilities. Charity aimed at improving the prospects of the latter enhanced the workings of the process of natural selection, by allowing those who were inherently capable of success in the struggle for survival a chance to compete on equal terms with everyone else.

Certain kinds of philanthropy, which aimed at providing equality of *opportunity* (though not of outcomes), were therefore mandated by Spencer. His wealthy enthusiasts embraced this kind of philanthropic work. Carnegie, for instance, specialized in endowing public libraries. Such libraries provided access to educational resources for the children of the impoverished, thus offering opportunities to those who had the innate qualities to take advantage of them.¹³

The political views founded upon the basis of (broadly) Darwinian principles came to be known as *Social Darwinism*. For the most part, Social Darwinism advocated *laissez-faire* capitalism as the best means to allow the process of natural selection to do its work. Social Darwinists were also frequently racists, arguing that the economic and political dominance of Western countries was the result of the biological superiority of the white race. There were, however, exceptions to both these generalizations. Prince Peter Kropotkin was a Russian anarchist who argued that natural selection favored organisms that cooperate, rather than those which compete selfishly. Charles Loring Brace, an American Social Darwinist, argued that evolution gave no support to racism. Some feminists invoked Darwin in arguing for political equality for women. But for the most part, Social Darwinism was politically conservative: its adherents supported the *status quo* and opposed government intervention to ameliorate the condition of the poor.¹⁴ In what follows, we shall be concerned almost entirely with this dominant strand of Social Darwinism, and the term will be used to refer exclusively to it, unless otherwise specified.

These days, we tend to associate opposition to evolution with a certain strand of the political right. It comes, in the main, from religious fundamentalists, for example, from the groups which form such

a powerful bloc on the right-wing of the Republican party in the United States. Opposition to the teaching of evolution goes hand in hand with opposition to abortion, and women's rights, even, sometimes, with overt racism. But it was not always thus.

One of the most famous battles in the long-running evolution wars was the 1925 trial of John Scopes, a high school biology teacher, for teaching the theory of evolution in contravention of a Tennessee statute. This, the so-called Scopes Monkey Trial, captured headlines and the public imagination across the United States and the world. A Pulitzer prize winning play, *Inherit the Wind*, dramatized the events of 1925, and was later turned into a successful film. *Inherit the Wind* depicts the Scopes Monkey Trial according to a now-familiar script: the forces of unprejudiced intellectual inquiry versus the power of religious dogmatism, a confrontation which has racked the Western world ever since Cardinal Bellarmine required Galileo to recant his heretical heliocentric theory. It was not just the theory of natural selection that was on trial in Tennessee: it was the entire legacy of the Enlightenment, in fateful confrontation with the forces of superstition and obscurantism.

The victory of the representatives of Darwin at that trial – a victory in fact, though not in law, since Scopes was found guilty and fined \$100 – is therefore widely regarded as a victory for science over prejudice. To some extent, that's just what it is: evolution is, after all, true. But there is ample evidence to suggest that the prosecution, led by the three times Democratic candidate for the Presidency, William Jennings Bryan, was motivated as much by justified concern over the pernicious political implications of Social Darwinism as by religious conservatism. Bryan saw in Darwinism a stick with which the poor would be beaten, and his tireless work to improve their lot undermined. Certainly, at least some of his opponents that day in Dayton, Tennessee, were not merely advocates of evolution as a scientific theory; they were also committed Social Darwinists. Clarence Darrow, one of the most famous lawyers of the day, defended Scopes. Darrow had volunteered his services at the urging of H. L. Mencken, who advised the defense during the trial, as well as covering it for the *Baltimore Sun*. Mencken, as the most famous journalist of the day, set the tone for the press coverage, ensuring that Bryan would be mocked. He told Darrow that the aim of the trial was

not to defend Scopes, but “to make a fool out of Bryan,” and thereby discredit fundamentalist opposition to Darwinism.¹⁵ And Mencken was a fervent Social Darwinist.

For Mencken, the lesson of Darwin was fundamentally and explicitly Nietzschean. Evolution is a struggle for scarce resources: a struggle that necessarily has winners and losers. Through this struggle, and through it alone, are born the best products of civilization. The ruthless process of natural selection is not merely inevitable; it is the source of all value. Thus, for Mencken:

There must be a complete surrender to the law of natural selection – that inevitable natural law which ordains that the fit shall survive and the unfit shall perish. All growth must occur at the top. The strong must grow stronger, and that they may do so, they must waste no strength in the vain task of trying to lift up the weak.¹⁶

Religion, for Mencken, was merely one means by which the weak attempt to impose shackles on the strong. “Christianity and brotherhood,” Mencken wrote, are not fit “for the higher men, not for the supermen of tomorrow.”¹⁷

The confrontation in Tennessee was not merely between religious fundamentalism and science. It was between two political ideologies: Bryan’s populist leftism – his advocacy of a federal income tax and of women’s suffrage, of a Department of Labor and opposition to capital punishment – and Mencken’s libertarianism, anti-Semitism and misogyny. Mencken and Darrow won the public relations battle, but it was a victory not for, or not only for, free inquiry; it was a victory for the forces of conservatism. It helped to sweep away one powerful set of obstacles to the respectability of Social Darwinism, and to give to a political ideology the veneer of respectable science.

Eugenics

No matter how distasteful the views of some Social Darwinists were, they seem relatively benign when compared to the excesses of the eugenicists. Eugenicists were not prepared simply to allow the process of natural selection to do its work: they wanted to give it a helping hand. Eugenics came in two forms: *positive* eugenics aimed to encourage the

best people to reproduce, and thereby ensure that future generations contained a higher proportion of the biologically fit; *negative* eugenics aimed to prevent the most undesirable from reproducing. In one or both forms, the eugenics movement flourished in the late nineteenth and the first half of the twentieth century.

Not all Social Darwinists were eugenicists, and not all eugenicists Darwinians.¹⁸ Indeed, though evolution was widely accepted by the end of the nineteenth century, its Darwinian form did not gain ascendancy until the “new synthesis” of the 1920s and 30s, when a new generation of biologists demonstrated the genetic basis of inheritance using tools which were unavailable to Darwin. Nevertheless, it is generally accurate to see eugenics as the activist wing of Social Darwinism. Whereas the Social Darwinists advocated allowing natural selection to run its course, without interference (or, at most, with just that degree of interference which would establish a level playing field upon which it could act), the eugenicists advocated giving natural selection a helping hand. In between the two are figures like John Berry Haycraft, author of *Darwinism and Race Progress* (1895), who argued that diseases like smallpox and tuberculosis were friends of humanity, since they eliminated the weak, and that therefore they ought not to be treated by the methods of modern medicine.¹⁹

Eugenics was enormously (from the perspective of today unbelievably), successful. It had adherents across the political spectrum, including many in positions of power, and advocates among the best contemporary scientists. Figures as distinguished as Julian Huxley, one of the foremost biologists of his day, and a principal architect of the “modern synthesis” of Darwin and Mendelian genetics (as well as the grandson of T. H. Huxley) endorsed its themes. Huxley worried that improvements in public health in Britain would lead to an increase in the number of “defectives,” and argued that measures should be taken to prevent them from reproducing.

Increasingly, measures *were* taken. Across northern Europe, where it was particularly influential, and in the United States, programs of involuntary sterilization of the allegedly unfit were enacted. In 1907, the state of Indiana passed a law permitting the sterilization of “defectives;” by 1933, twenty-nine other states had followed suit. Some scholars estimate that in the United States, between 1907 and 1974,

hundreds of thousands of people were sterilized, many involuntarily.²⁰ In the United States, the measures were often explicitly racist. Scientists and politicians warned against the dangers of miscegenation, and pressed for laws banning interracial marriages. They were more successful in imposing limitations on the immigration of “inferior” peoples. No less a personage than Theodore Roosevelt warned that a “war of the cradle” was being fought, between the better classes of people and the degenerate members of society.²¹

But it was in Germany that eugenics was most enthusiastically received. After 1933, and the coming to power of the Nazi party, eugenics was a central plank of government policy. The Nazi emphasis upon the blood of the people, upon the need to purify it of foreign admixture and thereby ensure the greatness of the nation, was not aberrant in the political and scientific climate of the first third of the twentieth century. Nazi scientists and party officials admired and copied the similar views of American thinkers and policymakers.²² But the Nazis went further, in their program of negative eugenics, than any other nation dared. They, too, enacted sterilization programs: by 1945, an estimated 360,000 Germans had been sterilized.²³ In addition, however, they began a program of “euthanasizing” the handicapped. Soon the program was extended: not only the handicapped, but members of supposedly inferior races, became its targets. Jews and the Romany people – gypsies – were its main victims, though Slavic peoples also suffered greatly at the hands of the Nazis. Massive factories of death, the concentration camps, were dedicated to the extermination of peoples whom Nazis saw as the parasites of Europe. Around six millions Jews were killed in these camps, as well as hundreds of thousands of other people.

It has been said that Hitler gave racism a bad name. He certainly did more than anyone else to make eugenics – and the milder Social Darwinism – disreputable. After the Second World War, eugenics went into a rapid decline. Its erstwhile intellectual leaders quickly distanced themselves from it or were marginalized; the legislation which had put its policies into practice was repealed. Eugenics did not suffer this fate, it seems, because it had been shown to be false, or because the theories that it had elaborated had been refuted. It lost favor because of its association with crimes of an unprecedented enormity. Racism lost

intellectual credibility, as did the view that inferiority or undesirable traits were importantly heritable. Social reformers turned their attention to other ways of improving the welfare of nations: to educational policy, for example, and to other methods of intervening which did not aim to change the kinds of people who were born, but instead focused on the environmental determinants of behavior.

Assessing Social Darwinism and eugenics

Social Darwinism and the eugenics movement were among the casualties of the Second World War. They were discredited, not because scientists and policy makers recognized that the evidence was against them, but by association with one of history’s most monstrous regimes. However, guilt by association shouldn’t be sufficient to convince us that the ideas upon which Social Darwinism and eugenics were built were false. To be sure, it seems that these themes were *central* to Fascism, and we therefore have some reason to link Hitler’s crimes quite directly to his Social Darwinist views. But it might be that Fascism caricatured ideas that were intrinsically sound, or misapplied them, or carried them far further than they ought to have gone. Perhaps, for instance, the central message of eugenics, apparently endorsed by Darwin himself, is true; perhaps we should take care to ensure that the best people reproduce in greater numbers than the less well endowed. If this is so, there are a number of steps we might be able to take to put eugenic policies into practice, without risking committing the crimes of Nazism. We could, for instance, provide financial assistance to encourage the brightest members of society to reproduce. We might place moral pressure on the less fit to remain childless, or restrict their access to reproductive services. In brief, there are many means we might employ in the pursuit of eugenic policies that stop well short of genocide, or even coercion. Perhaps Hitler misidentified the groups which ought to be discouraged from breeding, and perhaps he was wrong in thinking that only mass extermination could achieve eugenic goals, but maybe the basic idea – that we ought to be careful to breed the best members of society – is intrinsically sound.

However, we have very good reasons for rejecting the Social Darwinist package in its entirety. We can see this by critically examining

the central arguments in favor of it. We might set out the Social Darwinist argument against the welfare state schematically:

1. Natural selection is a process that favors the fittest organisms;
2. The fittest organisms are the best and most valuable;
3. We therefore ought to follow the lead of natural selection, and aid it by promoting the survival and reproduction of the fit, and by limiting the access to reproductive opportunities of the less fit;
4. The welfare state interferes with the workings of natural selection, by allowing the unfit as much opportunity to reproduce as the fit;
5. We therefore have good reason to avoid implementing the social policies of the welfare state (or any other policies which would interfere with the process of natural selection).

This seems to be a plausible argument, if all the assumptions it makes are true. How reasonable are they? Firstly, is it true that natural selection favors the fittest organisms? So long as we recall that "fit," as it is used in evolutionary biology, is a technical term, we can conclude that it is indeed true that natural selection favors the fit. Indeed, it is true *by definition*: "fit" means "those who are statistically likely to be favored by natural selection." Of course, accidents sometimes happen, the fittest organisms fail to reproduce, and the less fit do well (in very small populations, this can have significant effects on the direction of evolution). But generally speaking, fitness translates into reproductive success.

When it comes to assessing the second proposition in the Social Darwinist argument, however, it is crucial to bear in mind the fact that "fitness," as used in evolutionary biology, is a *technical* notion. We cannot validly deduce from the fact that an organism is "fit" that it is somehow "better" or more valuable than its less fit conspecifics. Appearances to the contrary, "fit" does not mean "good," or even "better." It doesn't even mean something like "more likely than average to possess the characteristics which we value." We do not value the ability of a disease bacterium to reproduce successfully inside our bodies, especially if it kills or injures us in the process. More importantly, and less obviously, it is not the case that a fitter human being is more likely to have qualities we value.

In order to see this, we need to recognize that fitness does not refer to the possession by an organism of any determinate qualities whatsoever. Fitness is always relative to an environment. The organism that is fit in one environment may be quite unfit in another. Take the bacterium I just mentioned, for instance. We might intuitively think that the more virulent a bacterium, the fitter it is. Pretheoretically, we might have an image of "virulence" in bacteria as something like "strength," and imagine that the more virulent bacteria will therefore out-compete their less virulent conspecifics. Given the right conditions, however, there might be selection for *less* virulent strains of a disease bacterium. Consider the recent evolution of the myxoma virus, which causes the disease myxomatosis in rabbits. When this virus was deliberately released in Australia, the intention was to control the introduced rabbit population. Rabbits are not native to Australia, and cause a significant amount of damage to farming land. At first, the virus was very successful, killing close to 100% of infected rabbits. But researchers soon detected a fall in the death rates of infected rabbits. Part of the explanation is to be found in the process of natural selection as it worked on the rabbits: resistant rabbits were more likely to survive infection, and therefore more likely to have offspring which would inherit the resistance. But part of the explanation also lay in the selection pressures at work on the virus itself. The myxoma virus is spread from rabbit to rabbit by fleas and mosquitoes. Therefore, those strains of the virus that killed their hosts quickly gave themselves less opportunity to spread, since these parasites only bite living rabbits. The longer their host lived, the more opportunity less virulent strains had to spread. Thus, these strains gradually took over the population. Less virulent disease-causing organisms are fitter, at least under some sets of conditions.²⁴

The lesson we should learn from the history of the myxoma virus is that the qualities which make an organism fit are not necessarily obvious. What characteristics will be favored depends, crucially, on the environment. We might think it possible to draw up a list of characteristics such that, no matter what the environment, an organism possessing them would be fitter than a conspecific lacking them. We might, for example, place physical strength and intelligence on such a list. But we would be wrong: though these are qualities that it is often

useful to have, there are no such things as the absolute best qualities, regardless of the environment. In the right conditions – and we have no reason to think that these conditions are unusual – the weaker and less intelligent can outcompete the stronger and the smarter.

How might this happen? We must remember that phenotypic characteristics (the observable characteristics of organisms) have *costs*, as well as benefits. Most obviously, they have costs in terms of energy. It takes energy to run a big body, with a great deal of muscle mass. But energy is a scarce resource. Animals get their energy by consuming food, so the more energy they require, the more food they need. Having lots of strength can come in very handy, under the right conditions. But if you don't need the strength, then the effort and energy put into acquiring and maintaining it is wasted. Under these conditions, weaker organisms, which don't waste their energy, might well out-compete stronger. This should be obvious when we stop to think about it: if more strength were always better than less, then all species would be continually increasing in strength. But they're not: instead, the fittest animals are those that (other things being equal) have the *right* amount of strength to cope with the kinds of problems animals like them typically encounter, and no more.

Much the same kind of reasoning applies to brains. Brains are very energy expensive. Pound for pound, they use more energy than any other part of the body. We would expect brain size – and therefore intelligence – to be limited by this. And there are other forces working to keep brains smaller than they might otherwise be. Giving birth is much more difficult and dangerous for humans than for other animals, something for which the big brains, and therefore heads, of babies are largely responsible. But there are other, more direct, costs to having a large brain, at least in some environments. Big, intelligent, brains are advantageous in complex and shifting environments, where the kinds of problems that must be solved by the organism are unpredictable and varied. But if the environment is stable, and the range of fitness-relevant problems is predictable, it would be better to have the appropriate behaviors built in. Animals which have the right responses instinctually programmed into their behavior will perform these responses more often and more quickly than those who must reason their way to a response, or learn it from others. So, more intelligence is

not necessarily better than less, even if more can be had within the limits of the available resources.

Thus, it is not true that fitter organisms necessarily have more of the kinds of qualities we tend to admire than do the less fit. Indeed, as we shall see in coming chapters, there might be good reason to think that arguably the most admirable qualities humans can possess, the qualities which make a person a moral being, frequently reduce fitness. Perhaps, however, we can rescue Spencer's view by arguing that, though it is not true that fitter organisms always have more admirable qualities than do the less fit, as a matter of fact, fitter human beings do have more admirable qualities than do less fit (setting moral qualities aside for the moment, since if Spencer is right most of us are in any case radically mistaken as to what constitutes morality). In typical human environments, for example, we might plausibly think that intelligence is a phenotypic quality which increases fitness. So long as natural selection favors those qualities that we independently identify as valuable, the Spencerian might therefore argue, we ought to refrain from interfering with it.

Let us accept, at least provisionally and for the sake of examining the rest of the Social Darwinist position, that this is correct: that in typical human environments intelligence is favored by natural selection. That is, in what evolutionary theorists call the *environment of evolutionary adaptation* (EEA), the environment in which human beings lived for most of our existence on this planet and for which it is plausible to maintain we are adapted, intelligence is a fit characteristic. But the EEA is very different from modern environments. In the EEA, we believe, human beings lived in small groups of several families, and survived by hunting and gathering. What was fit in that environment is not necessarily fit now, in modern cities (nor in the peasant societies of much of the Third World).

This fact makes the move from the view that natural selection favors qualities which are valuable in the EEA, to the conclusion that natural selection would continue to favor valuable qualities today, if only we refrained from interfering with it, a perilous one. It may very well be that many of the people who are most fit in modern environments – best able to accumulate resources, to attract desirable partners and, if they wish, to have many children – would be very unfit in the EEA, and

vice versa. How well would Bill Gates do on the plains of the Serengeti? In all probability, not very well. How well would Andrew Carnegie, or John D. Rockefeller, or Herbert Spencer have done? We have little reason to believe that their fitness in the environment of twentieth century America and Britain would be any indication of fitness in the EEA (though it may be no indication against it, either). Recall that fitness is always relative to the environment, and that therefore we cannot describe any set of characteristics as *the best*, no matter what.

So far, we have been talking as though the environment is an independent variable in assessing fitness. But this is not merely a gross oversimplification: it is plain wrong. In fact, organisms do not merely adapt to a fixed environment: in doing so they reshape that environment. This is true at very many levels simultaneously. Not only do animals, alter their environment in obvious ways (for example by damming rivers and building nests) but also, simply by the fact of its existence, each organism modifies the environments of those around it. The environment of a bird consists not only of the trees that offer it nesting sites, but also of the insects that are its food, of its predators, and of other birds. Birds of the same species are crucial to its reproduction, and might offer mutual assistance, yet are also competitors for food, for mates, for nesting sites; birds of other species are potential competitors, but they might also aid it in some manner (perhaps by alerting it to the presence of predators).

Social Darwinists ignore all of this. They tell us that we interfere with our environment, for example by providing organized welfare, at our peril. If we aid the weak, they warn, we risk providing for our descendants a multitude of enemies: all those hungry mouths, unable to feed themselves, all those bad characters, unwilling to work and always on the look-out for an opportunity to take advantage of the vulnerable. We ought, they tell us, to leave the environment undisturbed (or perhaps restore it to its natural condition) so that natural selection can do its work of weeding out undesirables.

But we human beings have radically reshaped our environment. We live, those of us in the West at least, largely in built environments: a world of skyscrapers and houses, roads and shopping centers. For all of us, Chinese peasant or Australian office worker, the way we carry out the range of activities most central to our evolutionary fitness – the way

we acquire the food and other goods which maintain our strength and that of our children, the way we ensure the viability of our offspring, the way we seek to attract and retain mates – is also very significantly shaped by our cultural environment. Fitness-relevant rewards accrue to individuals with abilities which seem, at first sight at least, to have nothing to do with the kinds of abilities which would have been valuable to our ancestors: ability to act in Hollywood blockbusters, to write pop songs, or to manipulate figures and choose stocks likely to yield a high rate of return, in the economies of the West; ability to write poetry in the Classical style (a prerequisite for joining the bureaucracy) in feudal China. What, we must ask the Social Darwinists, is special about these particular environments that we must regard them as sacrosanct? Why shouldn't we interfere with them? So far as I can see, there are two possible responses available to the Social Darwinist here: the *primitivist* and the *conservative*.

The *primitivist* Social Darwinists might concede the majority of our argument. That is, they might accept that there is no reason to believe that the characteristics of the environments in which most human beings presently live are such that the abilities that are most highly rewarded in them are really the abilities that are most valuable. The primitivist points out that the EEA for human beings is the African savannah, upon which our hunter-gatherer ancestors lived for perhaps one million years. Since this is our EEA, it is the abilities that would be rewarded in this environment which are truly valuable. And since most human beings do not now live a hunter-gatherer lifestyle, the abilities that are rewarded in most human societies are not truly valuable.

The primitivist might admit, therefore, that there is nothing to choose, from the point of view of Social Darwinism, between the world of unconstrained capitalism, which Rockefeller and Carnegie defended, and the Swedish welfare state (or a Communist Utopia). But this is only because both environments are utterly removed from our true EEA, in which the inference from "evolutionarily successful" to "valuable" – from "fit" to "good" – could reliably be made. The primitivist might go on to argue that, far from refraining from interfering with current social arrangements, we ought to be radically rearranging them, to bring them closer to the environments to which we are naturally adapted. To my knowledge, no one has actually argued that we

ought to revert to the hunter-gatherer condition. But there are elements of primitivism surviving in the work of contemporary theorists who attempt to understand human behavior in a Darwinian framework: when, for instance, they say, as many of them do, that we are generally unhappy because we are not adapted to the social environments in which we now live.

More popular than the primitivist response to the argument I sketched is a *conservative* reply. Those who take this line reject the argument completely: it is not true, they allege, that the qualities that are most highly rewarded in contemporary societies are entirely divorced from the qualities which would have been favored in the EEA. After all, the conservatives point out, though it is true that organisms reshape the environment in which they live, the behaviors involved in that reshaping are as much a product of natural selection as are any other characteristics of the organism. It is, therefore, false to believe that, to the extent that we live in cultures, we escape the forces of evolution. Human beings just are a kind of animal which lives in characteristic kinds of social group, and which shapes and structures those groups according to their innate dispositions. Though it is true that the environments in which almost all of us live today are very different from the EEA, nevertheless, the environments we have made for ourselves will continue to reflect the central features of our ancestral social environment because we will shape them to reflect our inborn dispositions. In particular, they will be structured so that very much the same characteristics, qualities and activities are rewarded in the new environments as in the old.

This may seem very implausible, when we consider the differences in the daily activities of the hunter-gatherer and the stockbroker or computer programmer. But look deeper, the conservative urges, and the similarities become plain. What qualities were rewarded in the EEA? We cannot, at this stage, attempt to provide anything like an adequate catalog of the adaptive qualities of our ancestors, but we can easily pick out a few key characteristics. Our male ancestors who were reproductively successful faced three major sets of fitness-relevant challenges: they had to attract mates, compete with each other, and provide game for themselves and for their family. Physical strength would obviously have been an advantage in hunting and in competing

with other males, as would speed and agility. The qualities needed to attract mates are more controversial, but there is good reason to believe that they would have included physical attractiveness and kindness. Women needed the abilities to gather food and to raise children. Of course, both sexes must have been fertile. For both sexes, intelligence would have been useful, both for its direct survival value (in enabling them to avoid predators, find food and devise the tools that would assist them), and as an enhancement to make them more attractive to potential mates.

Now all of these, the conservative claims, are qualities that are as much rewarded today as they were in the EEA. Or, more precisely, either these qualities are rewarded directly, or markers for these qualities are rewarded. It is easy to see how physical strength and agility are rewarded, as much today as ever. For some people, physical strength is rewarded through their employment. They are able to be more productive miners, farmers, or builders, because they are stronger than other people competing for the same jobs. For a lucky few, athletic prowess is rewarded beyond the dreams of a hunter-gatherer: by a contract with a major sports team, for instance. Notoriously, this kind of success is easily converted into reproductive currency.

It is also obvious how intelligence is still rewarded. It provides the abilities which enable many to secure employment, and, for a very few, it brings untold wealth. It is less obvious how capacities such as fertility are rewarded today, especially in Western societies that have undergone the so-called *demographic transition* to low rates of childbirth. In fact, fertility is not directly rewarded, but physical attractiveness is, and physical attractiveness is a marker for fertility. That is, men find certain women attractive because those women display the physical features (youth, unblemished skin, lithe bodies, and so on) that indicate they are healthy and likely to be able to bear healthy children. Thus it is her possession of markers for fertility that enables a Hollywood star or a supermodel to be so spectacularly successful.

We shall assess these suggestions in a later chapter. For the moment, let us assume that they are true, in order to discover what support for the Social Darwinist program might be drawn from them. The conservative argues that the same qualities that were rewarded in the EEA continue to be rewarded today, and that we can therefore conclude that

these qualities are valuable. We ought not, therefore, to alter our environment in any way that might cause these qualities no longer to be rewarded. Too extensive a welfare state, for example, would sever the link between strength, intelligence, attractiveness, and reproductive success. It would allow those who are unable, through their own efforts, to provide food well enough to attract a mate, to avoid the reproductive consequences of this inability by ensuring that they – and any offspring they might have – receive it from other sources. In this way, the unfit will continue to pass on their genes, instead of falling by the wayside.

Is the conservative position tenable, assuming that its interpretation of the abilities rewarded in modern societies is accurate? It suffers from at least two weaknesses. Firstly, it makes the controversial assumption that people's (potential) abilities are fixed, and require only the right kinds of opportunities to be expressed. This is implicit in the kinds of charities the Social Darwinist rules as permissible or impermissible. Charities like Andrew Carnegie's endowment of libraries, which give people *opportunities* to take advantage of their innate capacities, are permissible, perhaps even obligatory. But charities that break the link between capacities and outcomes, such as the organized provision of the necessities of life, are impermissible. That this is a controversial assumption ought to be obvious: it is one of the fault lines which divide left from right in the politics of Western democracies. The right, like the Social Darwinists, believes that rewards generally reflect effort plus innate capacity, in such a manner that if people are provided with opportunities (in the form of elementary schooling, jobs open to talents, and so on), they will tend to rise to a level which reflects their ability. The left, on the other hand, typically claims that though there may well be such a thing as innate ability, very frequently people are deprived of the opportunity to express it, due to pervasive cultural factors. Thus, for instance, feminists often argue that we achieve sexual equality not simply by providing girls with equal access to the same resources as boys, nor just by having gender-blind employment practices, but also by altering the many features of our culture which implicitly convey to women the belief that they cannot succeed in some professions, and thus shape their self-image and self-esteem, and modify their aspirations.

So, the left argues, we need to do far more to identify and aid people with ability than simply provide everyone with opportunities, Carnegie-style. Instead, we need wide-ranging changes to our social structure and culture. We may even need to equalize incomes, if it turns out that people's expectations and aspirations are profoundly shaped by the conditions in which they were socialized. These are important and controversial questions, and we cannot hope here to settle the empirical and conceptual debates upon which they turn. For the moment, it is enough for us to see that the appeal, often made by Social Darwinists, to the facts of biology and inheritance as crucial evidence for conservative political views, is circular. These alleged facts support Social Darwinism only if its central assumptions are correct, and therefore cannot be invoked to justify those very assumptions.

Of course, this does not show that Social Darwinism is false. It might turn out that the central assumptions invoked by the conservatives are in fact true. But the second deficiency of the Social Darwinist position is more serious. Let us assume, for the sake of the argument, that Social Darwinists are right in saying that the qualities rewarded today are very much the same ones which were rewarded in the EEA, and that the actual distribution we see of expressed abilities around us is a good reflection of people's innate capacities. Does it follow from these premisses that we ought to refrain from interfering with the workings of natural selection, so as to avoid bringing about a society in which rewards no longer reflect capacities? It is hard to see why. What would be *wrong* with bringing about such a society? Indeed, isn't it our moral *obligation* to alleviate poverty and misery: to feed the poor and house the homeless? Can we not, with Huxley, conclude that if natural selection is indeed a process by which the unfit are weeded out, morality requires us to fight against it?

There is a possible line of reply available to the Social Darwinists here. They might argue that, though it would indeed be a fine thing to improve the lot of the unfit, we cannot do so in a way that will not end up heaping even greater misery upon them and their descendants, and perhaps upon us and ours as well. We can aid the bad in multiplying, by providing them with resources, but this will only increase their number, and necessitate the provision of charity to an ever-growing multitude. Eventually, the numbers of unproductive people will exceed the

numbers we can support, and we shall be forced to allow them to face the consequences that attend their lack of fitness. If we aid the unfit, we only put off the day of reckoning, and ensure that when it comes it will be the more terrible.

This line of thought is suggested by one of the rare passages in which Darwin himself seems to endorse the main lines of Social Darwinist thought:

With savages, the weak in body or mind are soon eliminated; and those that survive commonly exhibit a vigorous state of health. We civilized men, on the other hand, do our utmost to check the process of elimination; we build asylums for the imbecile, the maimed, and the sick; we institute poor-laws; and our medical men exert their utmost skill to save the life of every one to the last moment. There is reason to believe that vaccination has preserved thousands, who from a weak constitution would formerly have succumbed to small-pox. Thus the weak members of civilized societies propagate their kind. No one who has attended to the breeding of domestic animals will doubt that this must be highly injurious to the race of man. It is surprising how soon a want of care, or care wrongly directed, leads to the degeneration of a domestic race; but excepting in the case of man himself, hardly any one is so ignorant as to allow his worst animals to breed.²⁵

Darwin's thought seems to be along these lines: if we eliminate the diseases of poverty, we aid those who are innately weak, enabling them to survive and reproduce. But if we do so, we ensure that their weakness will be passed on, and therefore there will be more people who suffer from a weak constitution in the next generation. Hence the "race" will decline and the average quality of human beings will fall.

But we must remember the crucial lesson commonly and conveniently forgotten by the Social Darwinists: fitness is relative to an environment. The fact that I, or you, might have succumbed to smallpox, or bubonic plague, or any one of the other diseases that routinely carried off our ancestors does not make us any the less fit now, in our present environment, where such diseases are rare. Our ability, or lack of it, to survive in the EEA is irrelevant to our fitness here. It may well be true that the population's natural resistance to smallpox will fall if the virus is eliminated. So what? Unless we have good reason to believe that smallpox will return – and that if it does we shall not be able to deal

with it – that should not worry us. As it happens, we possess effective vaccinations against smallpox, so we have no cause to worry. It is simply a confusion to think that altering the environment, so that what counts as fitness changes, necessarily *reduces* fitness. What would happen in a different environment is irrelevant to what happens in this one. To argue that those human beings who do well in this environment are not *really* fit because they flourish with the aid of medicine (or welfare) is akin to arguing that successful beavers are not really fit, because they wouldn't do very well without their dams. Human societies and beaver dams are both parts of what Richard Dawkins has described as the *extended phenotype* of those species; the things that they build around them are important parts of what makes them successful, not optional add-ons.²⁶

Social Darwinism and the naturalistic fallacy

Ask most philosophers what was wrong with Social Darwinism, and they will have a ready answer – it committed the *naturalistic fallacy*. In fact, this supposed fallacy was the least of the Social Darwinist confusions. There are philosophical errors at the heart of the Social Darwinist program, but their exact nature is little appreciated.

The naturalistic fallacy is the alleged mistake of offering a naturalistic definition of moral terms. It was introduced by G. E. Moore, in his *Principia Ethica* (1903), and had Spencer as its explicit target. Spencer claims that more evolved conduct is, by definition, good conduct. Moore deploys his *open question argument* against this definition. Consider the following definition of "bachelor": a bachelor is an unmarried man. Moore asks us to notice the difference between the following two sentences:

1. John is an unmarried man, but is John a bachelor?
2. *Homo sapiens* is highly evolved, but is *Homo sapiens* good?

Sentence one is a *closed* question. If you understand the meaning of the word "bachelor" then you know the answer. It is true, as a matter of definition, that if John is an unmarried man then he is a bachelor. But sentence two is an *open* question. It is sensible to ask it, and to wonder

what the answer to it is. For Moore, this showed that it could not be the case that “good” means “highly evolved,” or anything like it.²⁷

According to Moore, Social Darwinists like Spencer hold that “good” means “fit.” This is certainly one way to interpret Spencer’s contention that “the conduct to which we apply the name good, is the relatively more evolved conduct; and bad is the name we apply to conduct which is relatively less evolved.”²⁸ But, Moore claims, the success of the open question argument shows that “good” cannot mean “fit.” Indeed, the open question argument can successfully be deployed against any naturalistic definition of goodness. It will always be sensible to ask, of any entity that has the property with which goodness is allegedly synonymous, “But it is really good?”

This line of argument has convinced many philosophers. Yet, as it stands, it is Moore’s argument that is fallacious, not Spencer’s. If we take Spencer to be claiming that “good” is *coreferential* with “highly evolved” – that is, “good” refers to all and only “highly evolved” entities – then he is not committing any kind of logical error. Evolution is, after all, a science, and science often provides us with new and unexpected information about the reference of words. For example, Lavoisier, the famous eighteenth-century chemist, showed that water is a compound of oxygen and hydrogen. His contemporaries could not sensibly object to his discovery that “water” is “H₂O” on the grounds that it was an open question (to competent speakers of the language) whether or not water was H₂O. It *was* an open question, but Lavoisier closed it. Similarly, Spencer, or some other evolutionary theorist, might have closed the question of the reference of the word “good,” showing that it refers to whatever is highly evolved.

Moore seemed to think that no naturalistic definition of “good” could succeed, because goodness just is a non-natural property. But his argument that goodness is a non-natural property was – the open question argument! This is completely circular. It amounts to saying that no naturalistic definition of goodness can succeed, because goodness is a non-natural property, and adding that we know that goodness is a non-natural property because no naturalistic definition of it can succeed.

If Moore’s argument was patently fallacious, why were so many people convinced by it? I suggest that they were moved, not by Moore’s

argument, not by the contention that it is *fallacious* to identify “good” with “highly evolved,” but by the obvious fact that is *wrong* to identify “good” with “highly evolved.” It is wrong, not because it involves any kind of *logical* error (which is what committing a fallacy amounts to) but because it is simply, straightforwardly, false. If I claim that the moon is made of green cheese, I am not committing a fallacy. There is nothing logically invalid about the claim. I am just making a mistake. Similarly, the Social Darwinists were simply mistaken. We know that “good” just doesn’t mean “highly evolved,” and we know *that* because many things that are highly evolved are not good (and many good things are not highly evolved). Viruses and other pathogens might be as highly evolved as you like, but they are not good. God, if he exists, is (plausibly) good, but God is not highly evolved.

There is another reason why philosophers did not reject Moore’s argument. They may have confused it with another, closely related, error, which is also sometimes called the naturalistic fallacy. To avoid confusion, we will call it by another of its names: *Hume’s Law*, after the great eighteenth-century Scottish philosopher David Hume. Hume’s Law states that we cannot validly derive a statement about what ought to be the case from premisses that are purely descriptive: no deriving “ought” from “is.” At first sight, this might seem quite counter-intuitive. Surely from the (purely descriptive) premiss that “if we do not drink water, we will die,” we can validly conclude that “we ought to drink water?” Hume does not deny that we ordinarily reason in this manner, but, he contends, when we do so we implicitly add a normative premiss to our argument. In this case, the premiss might be something like “dying is bad”. The argument is valid, and we can use it to reach a normative conclusion, only because the premisses are not, in fact, purely descriptive.

It is easy to see that Hume’s Law and Moore’s naturalistic fallacy are closely related. We have only to realize that if a naturalistic definition of moral terms was ever to prove possible, Hume’s law would be shown to be false. If we can define “good” in non-moral terms, then we could validly derive “oughts” from purely descriptive premisses. If “good” meant “highly evolved,” we might be able to conclude, from the fact that something was highly evolved, that it ought to be preserved. Hume’s law therefore ought to be seen as provisional: it

holds only so long as there is no plausible naturalistic definition of goodness in the offspring.

It's not possible to commit the naturalistic fallacy, since there is no such fallacy. But people can and do commit the mistake of identifying goodness with the *wrong* natural property, and it's an error we ought to be on the look-out for. We often miss it, because we all share the tendency to make it. For example, we seem to have a powerful tendency to equate "natural" with "good." We tend to think that natural things are better than unnatural (indeed, the very word "unnatural" carries powerful pejorative overtones). Natural foods are better than artificial, natural childbirth is to be preferred to medically assisted, a natural manner is better than an affected one. It may be that many natural things are better than artificial substitutes (assuming for the moment that we can give a clear sense to the word "natural") but it is certainly a mistake to think that something is good, or even better, just because it is natural. Sickness and death are as natural as you like, but they are none the better for it. Most of us will gratefully accept "unnatural" antibiotics in order to fight off an otherwise life-threatening (but quite natural) infection.

Nevertheless, despite the fact that when we think clearly about the matter, it is easy to see that it is a mistake to equate "natural" with "good," so entrenched is this habit, so easily do we fall into it, that there is little doubt that the early success of Social Darwinism owed something to it. Rockefeller's justification of capitalist competition as the "working out of a law of nature" trades on this confusion. Another, closely related, confusion to which Social Darwinism was prey is implicit within the phrase "highly evolved." It involves equating the direction of evolution with progress.

Among Social Darwinists, Spencer was most explicit here. For him, evolution is the story of progress – though he had a somewhat idiosyncratic definition of progress. For him, progress, at every level – intellectual, social, political and biological – consisted of the transition from a less to a more complex and heterogeneous state; evolution was one more instance of the working out of this process.²⁹ But it is easy to see how evolution could be invoked in support of a less eccentric idea of progress. If evolution is equated with "survival of the fittest," or more accurately, the differential survival and *reproduction* of the fittest, then

we should expect the proportion of fit organisms in the population to rise. Thus, if it weren't for our continual meddling with the forces of natural selection, we could expect the human beings of the early twenty-first century to be somewhat fitter, on average, than (say) the human beings of the seventeenth century. If they were, we could therefore conclude that humanity has progressed by means of evolution.

But this would be a mistake. For many reasons, natural selection cannot be equated with progress. If we focus on one species, in isolation from its environment, it is easy to sketch scenarios in which, through natural selection, average fitness actually *falls*. Imagine, for instance, that in a population of animals a random mutation crops up which makes its possessors stronger and more aggressive than average. This extra strength and aggression might translate into extra fitness: perhaps it enables the animal to compete more effectively for food resources, or for mates. If so, and if the mutation is heritable, we should expect the proportion of animals that possess it to rise. Indeed, it may go to *fixation*, which is to say that it will come to be possessed by all the organisms. Once this happens, however, it could well be that the very same characteristics that raised the fitness of the first organisms to possess them lower the average fitness of the group. Since all the animals are now stronger and more aggressive, damaging fights may be common. Average life spans might fall, as might the number of viable offspring born. Fitness has fallen, simply through the normal workings of natural selection. In just this way, according to Sober and Wilson, selecting the most productive (as measured by their egg production) chickens for breeding can lead to an overall decrease in egg output. The most productive layers may be the most aggressive birds; they may do well when surrounded by chickens less aggressive than them, which avoid confrontation, but they do badly when surrounded by chickens as aggressive as they are.³⁰ The solution, for farmers wishing to increase their egg production, is to select the most productive *groups* of chickens as breeding stock, rather than the most productive individuals: score a point for the idea of group selection, widely regarded as heretical by contemporary biologists (you'll find more on group selection in the next chapter).

When we widen our perspective to include other species, it is even easier to see why natural selection ought not to be equated with

progress. Each member of each species competes, not only with its conspecifics, but also with members of the other species with which it shares its environment. Selection pressures operate upon all of them. Take a group of herbivores that is preyed on by big cats and suppose that their only method of defense is running away. In this environment, there is selection for running speed: the fastest animals tend to survive longer, and therefore have the chance to produce more offspring. Thus, the average speed of the population rises. This, we might think, is progress. However, just as the big cats exert selection pressure on the herbivores, so the herbivores exert selection pressure on the big cats. The cats compete amongst each other for prey, and the fastest ones tend to do better. So the average speed of the big cats rises as well. After many generations, both groups of animals are running significantly faster than their ancestors – but about the same number of big cats are killing about the same number of herbivores. Has progress really taken place? Or, with great expenditure of effort, has the evolutionary drama enabled each species to remain in exactly the same (relative) position as before? There is no naturalistic fallacy. “Good” might have turned out to mean “highly evolved,” and evolution might have turned out to be progressive. But, so far as we can discover, neither of these is the case. We need to be on the lookout for arguments which, usually implicitly, make the mistake of assuming otherwise.

The return of eugenics?

In the eyes of many writers, eugenics is presently undergoing a renaissance. The impetus for this revival has been the Human Genome Project, which seems to hold out the prospect of being able to genetically manipulate the characteristics of our children. We shall, many writers believe, soon be able to design our children: to specify their height, their intelligence, eliminate a propensity to depression, and build in the capacity for hard work. Should we fear the new eugenics?

Commentators are divided on the consequences of the new eugenics. For some, it offers the promise of taking our destiny into our own hands, and remaking ourselves in the image we desire. For others, it offers only the nightmare of division, inequality and the inevitable loss

of our humanity. Interestingly, both sides invoke evolution in making their case. For Gregory Stock, the new genetic technologies will “transform the evolutionary process” allowing us to take conscious control over it.³¹ We can now “fast-forward” the process, and guide it as we see fit. Lee Silver is even more enthusiastic in his support: “Why not seize this power? Why not control what has been left to chance in the past?”³²

In contrast, for Francis Fukuyama, the technologies which for Stock and Silver promise rational direction of what had formerly been left to the workings of blind chance threaten only inequality and division. At stake, according to Fukuyama, is nothing less than human nature itself. Our nature as a species, he argues, is a product of natural selection. If we take the process of evolution into our hands, then we give ourselves the power to choose our own nature. Fukuyama suggests that two calamities threaten if we begin to modify our natures. Our *commonality* comes under threat, and our *dignity* is undermined.

Fukuyama’s argument for the threat posed to human commonality is far clearer than his views on human dignity, so let us examine this first. Today, Fukuyama claims, the genetic differences between people are significant, but they are not significantly *clustered*. That is, some people are born with enormous natural advantages – greater intelligence, health, good looks, and so on – but because we cannot control the process whereby traits are passed on from parents to offspring, the children of the better endowed are not necessarily better endowed themselves. However, once we have control over this process, the children of the rich will be doubly advantaged. Not only will they inherit their parent’s wealth, and therefore have a far wider range of opportunities open to them but they will also inherit all their parents’ natural talents, and more besides. Since the new genetic technologies will be costly, it will be the children of the wealthy who will benefit most: who will have their IQs raised, their personalities modified to be optimal, and their lives extended. In a very few generations, Fukuyama suggests, the human race will have split into two separate groups. The children of the rich will become “children of choice,” and they:

Will look, think, act, and perhaps even feel differently from those who were not similarly chosen, and may come in time to think of themselves as different kinds of creatures. They may, in short, feel

themselves to be aristocrats, and unlike aristocrats of old, their claim to better birth will be rooted in nature and not convention.³³

This new class, he argues, will, quite literally, have been born to rule.

The second threat from the new eugenics to our common human nature that Fukuyama identifies, the threat to our human dignity, is far from clearly articulated in his work. In part, I suspect, this is because the underlying fear is amorphous and hard to pin down precisely. It is, nevertheless, very widely shared. The fear is that somehow, in tampering with our destinies, we risk losing something essential to our human nature. Acceptance of risk and contingency, it may be felt, is itself an ineradicable aspect of the human condition, an aspect, which, somehow, gives meaning to our lives and makes them what they are. If this is so, then in controlling our lives and our destinies, we risk emptying them of their essence, and creating a mode of existence that is radically impoverished. Perhaps a life emptied of its chance elements is a life without meaning. Or perhaps what is at stake is the risk of overreaching ourselves, of committing the sin the Greeks called hubris. We act hubristically when we attempt to usurp powers that are not appropriately exercised by us: when we, as the cliché has it, “play god.” Many of the narratives we relate to each other to make sense of our new powers are centrally concerned with this risk. Mary Shelley’s *Frankenstein* is paradigmatic of the story-telling tradition that reflects our anxiety at what we might do. In these tales, those who tamper with powers which were not meant for human beings bring destruction upon themselves and upon others. But the fear here is not just of bad consequences; instead, the disasters which follow are only a means of dramatizing the real damage, which is centered on the very act of abrogating to ourselves powers which are not on the human scale. To act hubristically is, once again, somehow to risk emptying human life of what is worthwhile in it, no matter what other consequences might flow.

It is easy to make sense of this accusation against a theistic background. If some powers properly belong only to God, if there are things which we are not “meant” – intended, where the intentions in question are those of the Creator – to do, then we can clearly see the source of the duties and obligations which we risk transgressing. But if there is no god, or if appeal to God is too controversial to serve as a source of

obligations in a multi-ethnic, multi-faith society, then we need to make sense of the appeal for us to respect our limitations in some other way. Fukuyama appeals to our evolved human nature to make his argument. Evolution has its reasons, which we, its products, are not necessarily well equipped to comprehend. The very contingency and unplanned nature of natural selection is a strength: its products all the better designed for not having been designed at all “evolution may be a blind process, but it follows a ruthless adaptive logic that makes organisms fit for their environments.”³⁴ The wisdom of natural processes, blind as they are, surpasses our foresight and cleverness.³⁵

The new eugenics avoids the pitfalls of the old. It is not racist. It does not seek to eliminate the supposedly “unfit”. It leaves decision-making in the hands of the people whose reproductive destiny is at stake, rather than imposing its will upon resistant or uncomprehending victims. It will not lead to Auschwitz, or even to the mass sterilization programs that characterized the less malevolent forms of the old eugenics. Instead, it merely opens up new choices, for those who wish to make them. In the eyes of some commentators, with these changes, from negative to positive eugenics, from state-imposed to individually chosen, the new eugenics shakes off all the elements which made the old immoral. It becomes one more consumer item, one more choice we can make from the menu that life in a technologically advanced and wealthy nation offers us. For others, as we have seen, the new eugenics is as threatening as the old, perhaps even more so because the risks are now so difficult to articulate, even to ourselves. For many, especially the scientists who work on the new technologies, genetic engineering promises to expand the sphere of human autonomy, while for others it threatens nothing less than the end of humanity, the end of what is most important about human nature. And both sides buttress their arguments by appeal to natural selection.

Can we settle this dispute, can we reinforce the borders we ought not to cross, or dissipate them altogether, by reference to evolution? Will a proper understanding of the process which gave rise to we large-brained social hominids, with our culture and our morality, allow us to understand our place in nature and (in apparent defiance of the naturalistic fallacy) thereby to settle not just what might lie within our power, but also what we ought to strive for, and what we should

repudiate? This, ultimately, is what is at stake in understanding the evolution of morality. We shall see how morality might spontaneously emerge among groups of mutually dependent creatures. We shall examine the extent to which our evolved dispositions shape our current aspirations and our beliefs. And we shall investigate the extent to which our physical and mental characteristics lie in our genes, to which our biology is destiny. There is a great deal of intrinsic interest in these investigations. Moreover, much of it matters, or so I shall claim: on our biology and its evolutionary history turn questions which concern our fondest hopes and the extent to which they are achievable or to which they are mere delusions. Ultimately, however, what is at stake is our concept of humanity, and its proper place in the universe. Darwin once suggested that “he who understands baboons would do more towards metaphysics than Locke;” perhaps evolution can illuminate ethics and human nature just as clearly.

2

The evolution of morality

Where it is in his own interest, every organism may reasonably be expected to aid his fellows. Where he has no alternative, he submits to the yoke of communal servitude. Yet given a full chance to act in his own interest, nothing but expediency will restrain him from brutalizing, from maiming, from murdering his brother, his mate, his parent, or his child. Scratch an “altruist” and watch a “hypocrite” bleed.

Michael Ghiselin, *The Economy of Nature
and the Evolution of Sex*

Could morality have evolved? Might the full suite of our ethical responses and judgments, our sentiment of right and wrong, itself be the product of natural selection? A lot of effort has been expended, by biologists and by philosophers, on this question; on attempted demonstrations that ethics might, or did, or could not, have come about by the process of natural selection. At first sight, this is a curious endeavor. After all, what does it matter where ethics comes from – whether it is the product of natural selection, a gift from God, or the reflection of values which are somehow eternally inscribed in the very fabric of the universe (to mention only some of the possibilities). What matters, we might think, is that ethics exists; that our conduct is and ought to be regulated by its demands, and that therefore we ought to get on with clarifying those demands without concerning ourselves with their source. However, there are multiple and intersecting reasons to think that the source of morality has a bearing on how we should behave.