

*The Cambridge Companion to*  
**DARWIN**

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### I AMBIVALENCES AND INFLUENCES

How does Darwin's Darwinism relate to social Darwinism and eugenics? Like many foes of Darwinism, past and present, the American populist and creationist William Jennings Bryan thought a straight line ran from Darwin's theory ('a dogma of darkness and death') to beliefs that it is right for the strong to crowd out the weak, and that the only hope for human improvement lay in selective breeding.<sup>1</sup> Darwin's defenders, on the other hand, have typically viewed social Darwinism and eugenics as perversions of his theory. Daniel Dennett speaks for many biologists and philosophers of science when he characterises social Darwinism as 'an odious misapplication of Darwinian thinking'.<sup>2</sup> Few professional historians believe either that Darwin's theory leads directly to these doctrines or that they are entirely unrelated. But both the nature and significance of the link are disputed.

This chapter examines the views held by Darwin himself and by later Darwinians on the implications of his theory for social life, and it assesses the social impact made by these views. More specifically: section II discusses the debates about human evolution in the wake of Darwin's *Origin of Species* (1859).<sup>3</sup> Sections III and IV analyse Darwin's ambiguous contribution to these debates. Sometimes celebrating competitive struggle, he also wished to moderate its effects, but thought restrictions on breeding impractical and immoral. Sections V and VI see how others interpreted both the science and social meaning of Darwinism. Darwin's followers found in his ambiguities legitimation for whatever they favoured: laissez-faire capitalism, certainly, but also liberal reform, anarchism

and socialism; colonial conquest, war and patriarchy, but also anti-imperialism, peace and feminism. Section VII relates Darwinism to eugenics. Darwin and many of his followers thought selection no longer acted in modern society, for the weak in mind and body are not culled. This raised a prospect of degeneration that worried people of all political stripes; but there was no consensus on how to counter this threat. In Nazi Germany, eugenics was linked to an especially harsh Darwinism. Section VIII sees 'Darwinismus' embraced initially by political progressives, and only later by racist and reactionary nationalists. Section IX concludes by assessing Darwin's impact on social issues and by reflecting on where we are now.

### II IN THE WAKE OF THE *ORIGIN*

The *Origin* did not discuss human evolution; but Darwin's peers were less reticent, and within a month debate focused on the implications of Darwin's theory for human biological and social progress. Darwin eventually published his major work on social evolution, *The Descent of Man, and Selection in Relation to Sex*, in 1871. In the *Descent*, Darwin engaged these controversies, especially as they had proceeded in Britain.

Alfred Russel Wallace, co-discover of the principle of natural selection and one of the very few British naturalists from a non-elite family, was among the first to discuss its social implications. Like Darwin, he had been wrestling with the issue for a very long time.<sup>4</sup> In an influential 1864 paper, Wallace argued that selection would cause rationality and altruism to spread. Once this process became well developed, individuals with weak constitutions would be cared for; thus selection would come to focus on mental and moral, rather than physical, qualities. In the struggle for existence among tribes, those whose members tended to act in concert and show foresight, self-restraint and a sense of right, would have an advantage over tribes in which these traits were less developed. The former would flourish, resulting in constant mental and moral improvement. Ultimately, the whole world would consist of one race, and the need for government or restrictive laws would vanish.

The process that led to utopia would also guarantee the extinction of native populations such as American and Brazilian Indians, Australian aborigines and New Zealand Maoris. According

to Wallace, 'savage man' would inevitably disappear in encounters with Europeans whose superior intellectual, moral and physical qualities make them prevail 'in the struggle for existence, and to increase at his expense', just as the more favoured varieties increase among animals and plants, and 'just as the weeds of Europe overrun North America and Australia, extinguishing native populations' thanks to their inherently more vigorous 'organization' and 'their greater capacity for existence and multiplication'.<sup>5</sup>

Wallace's focus was on the struggle among societies. But many of his peers were more concerned with whether selection still operated at home. Lesser races would not survive the brutal but ultimately beneficent (and in any case inexorable) struggle with their superiors, but in Britain and other 'civilized societies' it seemed that the process of selection had been checked. Modern medicine and humanitarian measures prevented elimination of the physically and mentally weak. Moreover, the least desirable elements in society were apparently outbreeding the best, prompting fears that the direction of evolution might actually reverse. The first to sound an alarm about the 'differential birthrate' was Darwin's cousin, Francis Galton.

In his 1865 essay, 'Hereditary talent and character', Galton argued that human intellectual, moral and personality traits – especially those making for success in life – were transmitted from parents to offspring.<sup>6</sup> Consulting biographical dictionaries, Galton demonstrated that men who had achieved eminence in various fields were more likely than members of the public at large to have had close male relatives who were themselves distinguished. Although conceding that the inheritance of social advantage might explain success in some fields, he insisted that most were open to talent. Certainly in science, literature and the law, talented individuals would succeed, no matter how unfavourable their background, while the untalented would fail, whatever their social connections.

Unfortunately, it seemed that the intelligent, industrious and foresighted were being outbred by the stupid, lazy and reckless. Given the complexity of modern life, this trend, if unchecked, could only end in disaster. The decline in intelligence would be especially harmful. How could this tendency be reconciled with Darwin's claim that the struggle for existence tended to the constant improvement of organic beings? Galton wrote to his cousin that natural selection 'seems to

me to spoil and not to improve our breed' since 'it is the classes of coarser organisation who seem on the whole the most favoured... and who survive to become the parents of the next [generation]'.<sup>7</sup> The obvious solution was for humans to take charge of their own evolution, doing for themselves what breeders had done for horses and cattle. But as to how exactly the stockbreeders' methods should be applied, Galton had little to say. He did not propose any specific measures to improve human heredity. Galton's hopes lay in changing mores. If people could only be made to see the importance of breeding, a way would surely be found to get the job done.

The retired millowner William Greg largely agreed with Galton and insisted that, unlike the lower orders, it is the middle classes – energetic, reliable, improving themselves and choosing to rise not sink – who delay marriage until they can support a family. But, on how the resultant swamping of these good elements by bad is to be prevented, Greg was no more specific than Galton. In an ideal world, only those who passed a rigorous competitive examination would be allowed to breed, but admitting this was not a realistic plan, Greg was left, like Galton, hoping that mores would slowly change in the right direction.<sup>8</sup>

At about the same time, Walter Bagehot, a banker and editor of the *Economist*, argued that human history, at least in its early stages, was a bloody and brutal affair. The origins of civilisation lay in the forming in intertribal warfare of the more cohesive tribes. But this progress ends unless a state can go beyond coherence and tameness, to the variability that 'oriental' despotism crushes; for variability brings fitness for that slow and gradual progress which Europeans have achieved in benefiting from innovation generated by warfare and racial mixing.<sup>9</sup>

In 1868 Wallace announced an about-face, denying that natural selection could account for humans' higher mental or moral qualities, and crediting their evolution to guidance by forces from a higher world of the spirit.<sup>10</sup> Wishing to distinguish his position from Wallace's, Darwin finally finished *The Descent of Man*, which was published in two volumes in 1871.<sup>11</sup> It did not make nearly as much of a splash as had the *Origin*, perhaps because it was not nearly as novel. In its applications of the theory of natural selection, his *Descent* drew heavily on Malthus, Spencer, Wallace, Galton, Greg, Bagehot and other contemporary social theorists.<sup>12</sup>

### III DARWIN ON HUMAN BIOLOGICAL AND SOCIAL PROGRESS

Darwin's reading reinforced views he had developed during the five years (1831–6) he spent circumnavigating the globe on HMS *Beagle*. Darwin hated slavery and his comments on the black people he met, both slave and free, were sympathetic and respectful. He was also repelled by the cruelty of European conquest, and often had a low opinion of settler populations.<sup>13</sup> But although shocked by the colonists' methods, Darwin assumed that conquest itself was inevitable. In the second, 1845, edition of his *Journal of Researches*, he wrote that, although it is not only the white man who acts as a destroyer, '[w]herever the European has trod, death seems to pursue the aboriginal. . . . The varieties of man seem to act on each other in the same way as different species of animals – the stronger always extirpating the weaker.'<sup>14</sup> And while the means might be repellent, he was sure the results would be beneficent.<sup>15</sup>

Darwin's views on human evolution were strongly influenced by his encounters with the inhabitants of Tierra del Fuego. On board the *Beagle* were three Fuegians whom its captain, Robert FitzRoy, had captured and brought back to England on an earlier visit. Darwin was impressed both by their acute senses and the extent of their cultural transformation.<sup>16</sup> But on encountering Fuegians in their native land, he found them unbelievably strange, and was shocked by their aggressive behaviour and apparent cruelty.<sup>17</sup>

Remote as these Fuegians seemed from Englishmen, Darwin would always see continuous gradations 'between the highest men of the highest races and the lowest savages'.<sup>18</sup> Rating animals, especially under domestication, highly and savages lowly, he could close any gap in intelligence between the Fuegians and the orang-utan as early as 1838.<sup>19</sup> He would eventually claim to prefer descent from the heroic monkey that risked its own life to save its keeper's, or the old baboon that rescued a comrade from a pack of dogs, as 'from a savage who delights to torture his enemies, offers up bloody sacrifices, practices infanticide without remorse, treats his wives like slaves, knows no decency, and is haunted by the grossest superstitions'.<sup>20</sup>

Darwin was thus receptive to Wallace's argument that selection guaranteed the extinction of all the primitive peoples with whom Europeans came into contact. In the *Descent*, Darwin drew on

Wallace's 1864 paper and also Bagehot's series of articles to argue that tribes which included the largest proportion of men endowed with superior intellectual qualities, sympathy, altruism, courage, fidelity and obedience would increase in number and eventually displace the other tribes. 'Obedience, as Mr. Bagehot has well shewn, is of the highest value', wrote Darwin, 'for any form of government is better than none.'<sup>21</sup> The process of improvement continues to the present, as 'civilised nations are everywhere supplanting barbarous nations'. Since morality is an important element in their success, both the standard of morality and number of moral men will 'tend everywhere to rise and increase'. Inheritance of property contributes to this process, since without capital accumulation 'the arts could not progress; and it is chiefly through their power that the civilised races have extended, and are now everywhere extending their range, so as to take the place of the lower races'.<sup>22</sup>

But in his own society, progress is not assured. In the *Descent*, Darwin noted that whereas among savages the weak in mind and body are soon eliminated, civilised societies do their best to check this selection. Asylums for the 'imbecile, the maimed, and the sick'; poor laws; medical efforts to preserve every life; vaccination against small pox – all entail that the 'weak members of civilised societies propagate their kind'. Anyone who has studied 'the breeding of domestic animals' cannot doubt 'that this must be highly injurious to the race of man'. Want of care, or care wrongly directed, leads to the 'degeneration of a domestic race'. But except 'in the case of man himself, hardly any one is so ignorant as to allow his worst animals to breed'.<sup>23</sup> Darwin immediately remarks, however, that the sympathetic instincts that lead us to aid the helpless are themselves the product of natural selection. Moreover, we could not suppress these instincts without damaging the 'noblest part of our nature'. To ignore the weak and helpless purposely would be to commit a certain and great evil in return for what is only a possible future benefit. 'Hence we must bear without complaining the undoubtedly bad effects of the weak surviving and propagating their kind.'<sup>24</sup> Moreover, while selection has been checked in many ways, it continues to operate in others. Thus it works to develop the body, as can be seen in the fact that civilised men are stronger than savages and have equal powers of endurance. It favours the intellectually able, even amongst the poorest classes. And it tends to eliminate the worst dispositions. Criminals

are executed or sent to jail, and so are unable to pass on their bad qualities. The insane kill themselves or are institutionalised. Violent men die violently, and prematurely. The restless emigrate. The intemperate die young and the sexually profligate are often diseased.

On the other hand, the very poor and the reckless almost always marry early, while those who are virtuous enough to wait until they can support a family in comfort do so late in life. The former produce many more children who also, being born during their mothers' prime of life, tend to be more physically vigorous. Quoting Greg, Darwin regrets that the vicious members of society tend to reproduce more rapidly than the virtuous. There are, however, counters to this process too: mortality among the urban poor and among women who marry at a very early age is (it seems fortunately) high. But if these and other checks 'do not prevent the reckless, the vicious, and the otherwise inferior members of society from increasing at a quicker rate than the better class of men', Darwin warns, thinking of Bagehot and Henry Maine, 'the nation will retrograde, as has occurred too often in the history of the world. We must remember that progress is no invariable rule.'<sup>25</sup> This prospect remained a lifelong concern. Wallace noted that in one of their last conversations, Darwin had expressed gloomy views about the future because 'in our modern civilization natural selection had no play, and the fittest did not survive'. Those winning wealth are not 'the best or the most intelligent' and 'our population is more largely renewed in each generation from the lower than from the middle and upper classes'.<sup>26</sup>

#### IV THE WAY FORWARD

But what to do? Here Darwin, like Galton and Greg, had little to say. Advancing the welfare of mankind is a most 'intricate' problem. Population pressure has been an essential element in mankind's advance. 'Natural selection follows from the struggle for existence; and this from a rapid rate of increase. It is impossible not bitterly to regret, but whether wisely is another question, the rate at which man tends to increase; for this leads in barbarous tribes to infanticide and many other evils, and in civilised nations to abject poverty, celibacy, and to the late marriages of the prudent.'<sup>27</sup> But if man had not been subject to such pressure, he would not have attained his present rank. At the close of the *Descent*, Darwin considers the contemporary

implications of this principle. On the one hand, he reasons, those who are unable to avoid abject poverty for their children should not reproduce. But on the other, if only those who are prudent refrain from marriage, the inferior members of society will supplant the superior. Malthusian 'moral restraint' is thus a counter-selective factor. He concludes with a reminder that: 'Man, like every other animal, has no doubt advanced to his present high condition through a struggle for existence consequent on his rapid multiplication' and warns that the advance will be halted unless he remains subject to severe struggle.

Otherwise, he would soon sink into indolence, and the more highly-gifted men would not be more successful in the battle of life than the less gifted. Hence our natural rate of increase, though leading to many and obvious evils, must not be greatly diminished by any means. There should be open competition for all men; and the most able should not be prevented by laws or customs from succeeding best and rearing the largest number of offspring.<sup>28</sup>

However, immediately after voicing that classically 'social Darwinist' sentiment, he notes that moral qualities are advanced much more by habit, reason, learning and religion than by natural selection.

Darwin's views on inheritance of property and suspicion of labour unions clearly mark him as a Whig. He condemned primogeniture, on the grounds that it enabled the eldest sons, no matter how weak in mind or body, to marry, while often preventing superior younger sons from doing likewise. But here, too, there were compensatory checks.<sup>29</sup> Darwin did unambiguously favour allowing inheritance of moderate amounts of wealth. Holding capital accumulation to be partly responsible for the success of European colonisation, he also thought it necessary for continued domestic progress.

Darwin himself had been generously supported by his father, who provided not just an allowance but *Down House* as a gift and a large inheritance at his death in 1848.<sup>1</sup> Combined with income from royalties, rents, and especially investments, a marriage gift, and an inheritance from his older brother, his estate at his death was worth over a quarter of a million pounds, apart from a trust established for his wife Emma.<sup>30</sup> His family's wealth had enabled Darwin to pursue his career, an experience reflected in his comment that, while inheritance of property means that children will not start at the same place

in the 'race for success', capital accumulation is nevertheless necessary for progress both in the arts and intellectual work. Indeed, 'the presence of a body of well-instructed men, who have not to labour for their daily bread, is important to a degree which cannot be over-estimated'.<sup>31</sup> Perhaps unsurprisingly, Wallace, whose family could not afford to keep him in school past the age of fourteen, came to the opposite opinion. He thought that inheritance in property should be abolished.

Shortly after the *Descent* appeared, Heinrich Fick, a law professor at the University of Zurich, sent Darwin a copy of an essay he had written urging restrictions on marriage for men ineligible for military service (to counter the dysgenic effects of war) and opposing egalitarian social policies (since they advantage the weak). In reply, Darwin voiced a hope that Fick would at some point discuss what he considered a serious problem in Britain: the insistence by trade unions that all workmen, 'the good and bad, the strong and weak', should all work the same hours for the same wages. 'The unions are also opposed to piece-work, – in short to all competition.' He fears, too, that Cooperative Societies 'likewise exclude competition.' This seemed 'a great evil for the future progress of mankind'. But he never published such sentiments, perhaps partly out of caution, but also because with Darwin there was always an 'on the other hand'. In this case, Darwin continues: '– Nevertheless, under any system, temperate and frugal workmen will have an advantage and leave more offspring than the drunken and reckless.'<sup>32</sup>

Nor did Darwin propose any practical measures to control human breeding. Even in his own life, Darwin's worries did not translate into action. The Darwin-Wedgwood family was highly inbred, and, perhaps as a result, experienced more than its share of mental and physical infirmities. Charles, despite anxieties about the ill-effects of inbreeding, did marry his first cousin, Emma Wedgwood. Moreover, his nearly lifelong battle with ill-health began three years before his marriage, and he worried constantly about inflicting hereditary illness on his children. But this did not inhibit him from siring nine of them.<sup>33</sup> In the public as well as private sphere, Darwin's anxieties found little tangible expression. Like Galton, he urged his readers to pay at least as much attention to the pedigrees of their prospective mates as to those of their horses and dogs. For he was emphatic about the operation of sexual selection in humans. Males selected

females for physical beauty and emotional qualities, while females selected males for their strength, intellect and status. This explains why women surpass men in tenderness, intuition and selflessness, but have less energy, courage and intelligence. Darwin concluded that, although they should be educated, women cannot compete successfully with men, and are, by nature, best suited to domestic life.

But all the concrete suggestions for encouraging reproduction of the valuable members of society or discouraging it by the undesirable members seemed to Darwin either impractical or morally suspect. He thought it unlikely that the reckless could be convinced to refrain from breeding, and he was too much of a Whig even to contemplate using the power of the state to segregate them from the rest of society. Nor did he think that the gifted would respond to appeals to have more children. Like Galton, he was left to hope that education would produce a change in mores. Unlike Galton, he does not seem to have been very optimistic about the chances of such changes taking place.

#### V SOCIAL DARWINISM AND SOCIALIST DARWINISM

Darwin's waverings certainly contributed to the diverse readings of Darwinism, as did ambiguities in the *Origin* about the locus and meaning of struggle. Darwin had stressed the importance of struggle within species, believing it to be the most severe since these individuals lived in the same places, ate the same food and faced the same dangers. Advocates of laissez-faire tended to follow suit. But Darwin also noted that he used the term 'Struggle for Existence in a large and metaphorical sense, including dependence of one being on another.'<sup>34</sup> Some of his followers read him as deprecating intra-specific struggle, at least among the social species, and as emphasising the value of within-group cooperation instead – a reading bolstered by Darwin's account of human evolution. Mutualistic readings tended to appeal to socialists, anarchists and liberal reformers, as well as (or including) those who appropriated Darwin to argue for racial, national or class superiority. Of course there was no need to choose, and many writers invoked natural selection to argue for laissez-faire at home and imperial conquest abroad.<sup>35</sup>

Certainly, apologists for dog-eat-dog capitalism easily found elements to their liking. As early as 4 May 1860, Darwin famously

remarked in a letter to Charles Lyell: 'I have received in a Manchester Newspaper rather a good squib, showing that I have proved "might is right," & therefore that Napoleon is right, & every cheating Tradesman is often right.' It is notable that the reference was to a commentary on the *Origin* that appeared in the *Manchester Guardian* under the title 'National and Individual Rapacity Vindicated by the Laws of Nature.'<sup>36</sup> The commentary obviously involved a crude extrapolation. Nevertheless, the *Origin* was easily appropriated for such purposes, as the writings of Greg and other early commentators attest.

That reading of Darwinism – as a biologicistic justification for laissez-faire and colonialism – is what is generally implied by the term 'social Darwinism'. It was a term that would have baffled Darwin. In Victorian England, scientists took for granted that biological facts mattered for social theory and policy. As James Moore has noted: "'Darwinismus" in Germany and "Darwinism" in the English-speaking world quite sufficed to express Darwin's intentions, all his allies' hopes, and all his critics' fears.'<sup>37</sup>

Coined around the turn of the century, the phrase 'social Darwinism' was popularised in the mid-1940s by the American historian Richard Hofstadter. It has ever since been a term of abuse, applied to people, policies and ideas of which the writer disapproved. (People do not identify themselves as 'social Darwinists'.) A New Deal liberal, Hofstadter's target was laissez-faire conservatism. In his historical account, social Darwinism was an essentially conservative ideology and social movement, which appropriated the theory of evolution by natural selection to support unrestricted laissez-faire at home and colonialism abroad. It ostensibly flourished in the late nineteenth century, reaching its zenith in Gilded-Age America, where it appealed not just to professional social thinkers, but to a wide swath of the middle class. Its proponents held that it was only natural that 'the best competitors in a competitive situation would win', that this process would lead to continuing (if slow) improvement, and that efforts to hasten improvement through social reform were doomed to failure.<sup>38</sup>

But as Hofstadter himself acknowledged, the *Origin* was also appropriated for quite different ends. Socialists found in Darwinism support for religious scepticism and belief in the inevitability of change. Some [but not Marx] also found in his theory a direct basis

for socialist principles. One socialist strategy was to elide the struggle for existence with the struggle among classes, arguing that the proletariat would inevitably triumph. Another was to claim that the struggle now was among societies, nations or races, a battle that would be undermined by class conflict. A third was to de-emphasise individual struggle, finding in Darwinism a basis for altruistic and cooperative behaviour. (Occasionally, these themes would combine, as in August Bebel's *Die Frau and der Sozialismus*, which argues that a fierce struggle for existence will prevail until the victory of the proletariat, after which social solidarity will reign.)

Anarchists such as Prince Peter Kropotkin (1902) and liberal reformers in the US and Britain also de-emphasised individual struggle, finding in the *Origin* support for a holistic view of nature as a 'tangled bank' characterised by a complex web of relations. Often drawing as much on Herbert Spencer as Darwin, they argued that the struggle for existence was not primarily about combat, at least among members of their own group, but coexistence.<sup>39</sup> Some cited Darwin's argument in the *Descent* that the development of reason, feelings of sympathy, and cooperation were key to human evolution. Moreover, by emphasising the Lamarckian elements in Darwin, they were able to claim that humans could escape the grip of biology and create social organisations which fostered desirable traits.

The softer, anti-deterministic view of Darwinism was also shared by the 'peace biologists'. Darwinism was, of course, used to justify warfare and imperial conquest. In the dominant motif, nature was brutal and humans were beasts. Humans were part of a natural world, which is characterised by a relentless struggle for existence, in which the strongest, fleetest, most cunning prevail. Human behaviour reflects man's animal origins. Belligerence and territoriality are ineradicable instincts, deeply rooted in human nature. Humans are 'fighting apes', as nineteenth-century popularisers had it, and war an essential part of the evolutionary process. British anthropologist Sir Arthur Keith famously asserted: 'Nature keeps her human orchard healthy by pruning; war is her pruning-hook.'<sup>40</sup> Moreover, if life is warfare, then discipline and obedience are cardinal virtues.<sup>41</sup> But pacifists also found resources in Darwin. They argued that murder and war were rare among animals within their own species. Only man regularly killed his own kind. They challenged the assumption that beasts were bestial, citing Darwin's examples of cooperative

behaviour among animals, as well as evidence of their intelligence, loyalty, bravery, affection and self-sacrificing behaviour. And they could cite Darwin's comments in the second edition of the *Descent*, where he criticised conscription and war on the grounds that the former prevented healthy males from marrying during their prime, while the latter exposed them to the risk of early death. Following this line of argument, some anti-militarists claimed that even if war had once been a progressive force, it was now dysgenic.<sup>42</sup> In Britain, the slaughter of fit young men in the First World War led many Darwinians to rethink the evolutionary value of warfare and ultimately to reject the idea that it was beneficial.<sup>43</sup>

Darwinism was similarly used to legitimate every view of women's abilities and appropriate roles. Darwin's authority was invoked in support of the claim that women's place was in the home, not the school or the workplace.<sup>44</sup> But the theory of sexual selection, which for Darwin accounted for gender differences, was also turned to radical uses. Socialists and feminists could argue that, in contemporary society, sexual selection had been thwarted. Men who were stupid and vicious had no trouble finding mates, as long as they were rich. Women were forced by social circumstances to choose as husbands men who could support them, however inferior their personal qualities. A character in *Looking Backward*, an influential novel by the American utopian socialist Edward Bellamy, explained that, in the new Boston of the year 2000, sexual selection has full play. Thus poverty no longer induces 'women to accept as the fathers of their children men whom they neither can love nor respect. Wealth and rank no longer divert attention from personal qualities. Gold no longer "gilds the straitened forehead of the fool". The gifts of person, mind, and disposition... are sure of transmission to posterity.'<sup>45</sup> Many social radicals – including Wallace in Britain and Victoria Woodhull and Charlotte Perkins Gilman in the US – argued that the continued subjugation of women thwarts sexual selection and thus endangers the future of the race.<sup>46</sup>

#### VI DARWINISM, LAMARCKISM AND SOCIETY

The meaning of 'social Darwinism' is muddled not just by the use of Darwinism to justify a variety of existing or proposed social arrangements, but by the fact that many advocates of laissez-faire rejected

the principle of natural selection or minimised its significance. Indeed, some stereotypical 'social Darwinists' preferred the theory, associated with Lamarck, that organisms acquire new characteristics as the result of a process of active adaptation to their environments. These 'neo-Lamarckians' included the British philosopher Herbert Spencer, who argued that unfettered economic competition would cull the unfit and also act as a spur to improvement. For Spencer, competition functioned to make creatures work harder, and thus to exercise their organs and faculties (in contrast with Darwin, for whom competition worked mainly to spread minority traits throughout a population). The mental powers, skills and traits of character fostered by this struggle would be transmitted to future generations, resulting in constant material and moral progress. Ultimately (and inevitably) the evolutionary process would produce a perfect society characterised by stability, harmony, peace, altruism and cooperation. Land would be held in common, women would have the same rights as men and government would become superfluous, and ultimately disappear.<sup>47</sup> In the meantime, the state should do nothing to alleviate the sufferings of the unfit. After all, as Spencer wrote in 1850, 'the whole effort of nature is to get rid of such, to clear the world of them, to make room for better'.<sup>48</sup>

Peter Bowler argues that Spencer's emphasis on the value of self-help was much closer to the spirit of competitive capitalism than Darwin's more fatalistic principle of natural selection of chance variations.<sup>49</sup> In any case, many social theorists, especially in America, owed more – sometimes much more – to Spencer than to Darwin.<sup>50</sup> Indeed, in 1907, the American sociologist Lester Frank Ward declared that he had 'never seen any distinctively Darwinian principle appealed to in the discussion of "social Darwinism"'.<sup>51</sup> (More recently, Antonello La Vergata jokingly suggested that 'Darwin was one of the very few Social Darwinists who was really a Darwinian'.<sup>52</sup>)

Given that Spencer both minimised the role of natural selection and developed much of his theory before 1859, is it reasonable to classify him and his followers as 'social Darwinists'? Or if the term has value at all, should it be reserved for those who explicitly invoked Darwin's own theory? That issue is complicated by the fact that what counts as 'Darwin's theory' in the late nineteenth century is far from obvious, both because Darwin's own views shifted over time,

and because 'Darwinism' was often employed interchangeably with 'evolutionism'. In particular, the boundary between Lamarckism and Darwinism was blurred. Many scientists who downplayed the role of natural selection were nonetheless considered Darwinians; indeed, Darwin himself accorded significant (and over time, increasing) scope to Lamarckian factors. The confused relationship between 'Darwinism' and 'Lamarckism' is nicely illustrated by Bagehot's *Physics and Politics*, which was subtitled 'Or Thoughts on the Application of the Principles of "Natural Selection" and "Inheritance" to Political Society'. According to Bagehot, the traits favoured in warfare are produced by a Lamarckian process in which changing desires produce changes in habits, which are transmitted to the next generation: 'it is the silent toil of the first generation that becomes the transmitted aptitude of the next'. Indeed, history is 'a science to teach the law of tendencies – created by the mind, and transmitted by the body – which act upon and incline the will of man from age to age'.<sup>53</sup>

Thus efforts to stipulate a definition of 'social Darwinism' are frustrated both by Darwinism's association with contradictory causes and the lack of specifically Darwinian content in the views of many classical 'social Darwinists'. Historians have weighted these factors differently, resulting in a plethora of definitions, ranging from the very narrow – the conventional identification of 'social Darwinism' with the legitimization of laissez-faire capitalism – to the very expansive – its application to any social use of Darwin's theory (or even to any social use of evolutionary theory, irrespective of its debt to Darwin). Steering a middle course are historians who recognise the multivalent character of the theory, but believe they can identify some core doctrine uniting the various strands.<sup>54</sup>

The absence of agreement on the meaning of social Darwinism (or even whether it has one) assures that there will be different views of its relation to eugenics. If social Darwinism is equated with laissez-faire, a programme to intervene with individual reproductive decisions may seem its obverse. If the term applies to collectivist as well as individualist ideologies, eugenics is more plausibly viewed as one form of social Darwinism.<sup>55</sup> But at least there is virtual consensus among historians that eugenics was linked in some important way to Darwin's theory. Even Robert Bannister, who dismisses social Darwinism as a myth, accepts that, 'the idea of pruning humanity like so many roses was indeed a logical deduction from the *Origin*

*of Species*, if one could stifle the moral sensibilities that troubled Darwin himself'.<sup>56</sup>

#### VII NATURE, NURTURE AND EUGENICS

Darwin and his nineteenth-century compatriots worried that, if traits making for social success and failure were heritable, and if the failures were producing more children than the successful, the result would be degeneration. But in Darwin's day, the view that heredity held the key to social success was not widely accepted. Indeed, Darwin himself, while claiming to have been converted to Galton's perspective on the importance of inherited intellect, continued to believe that zeal and hard work also mattered. Moreover, while Lamarckism reigned, hereditarian beliefs did not necessarily imply support for programmes of selective breeding. Even those who assumed that social problems were due to bad heredity often concluded that the solution lay in social reform. As long as the Lamarckian view held sway, it made no sense to counterpose nature and nurture.

By the turn of the century, however, Lamarckism – while far from dead, even in scientific circles – was in decline. A corollary of the increasingly popular view that heredity was hard (that is, non-Lamarckian) was the belief that the only solution to social problems was to discourage reproduction by those with undesirable traits, while encouraging reproduction by society's worthier elements. In 1883, Galton coined the word 'eugenics' to describe this programme.

It would soon acquire a wide and enthusiastic following, which cut across the usual political divisions. Middle-class people of every political persuasion – conservative, liberal and socialist – were alarmed by the apparently profligate breeding of what in Britain was called the 'social residuum'. Galton, Greg and Darwin lacked any real evidence to support their intuitions that the least able elements in society were outbreeding the capable. However, a raft of reports and demographic studies seemed to confirm their worst fears. In Britain, the large number of recruits rejected for military service in the Boer War, and statistical studies demonstrating a correlation between large families and poor social conditions were taken as proof that the nation was deteriorating. This disturbing trend was exacerbated by the First World War, which resulted in the deaths of the fittest young men, and was widely viewed as a eugenic disaster.

How to counter this trend? Galton had been principally concerned to encourage the talented to have large families; that is, with what he termed 'positive' eugenics. But in the twentieth century, 'negative' measures came to seem much more urgent. In the United States, Canada and much of Northern Europe, as well as Britain, the central question was how best to discourage breeding by moral and mental defectives.

In the 1870s, when Darwin wrote the *Descent*, education and moral suasion appeared even to most alarmists as the only acceptable means of preventing the swamping of the better by the worse. But by the turn of the century, new views of heredity had converged with a heightened sense of danger and changing attitudes towards the state to make active intervention more acceptable. Darwin, Greg and even Galton were too imbued with Whig distrust of government to propose that it restrict human breeding. As a commitment to laissez-faire gave way to acceptance of collectivist-oriented reform, efforts to intervene actively with reproduction in the interests of the community acquired greater legitimacy. To those who had faith in disinterested expertise and the virtues of state planning, control of breeding seemed only common sense.<sup>57</sup>

Initially, intervention took the form of segregation of 'defectives' during their reproductive years. Since institutionalisation was expensive, sterilisation (vasectomy in men, tubal ligation in women) became an increasingly popular alternative, especially with the advent of the world-wide economic depression of the 1930s. Sterilisation was opposed, along with contraception and abortion, by the Catholic Church and, in Britain, by the Labour Party (which saw its members as potential targets). But by 1940 sterilisation laws had been passed by thirty American states, three Canadian provinces, a Swiss canton, Germany, Estonia, all of the Scandinavian and most of the Eastern European countries, Cuba, Turkey and Japan. In the United States, advocates of immigration restriction argued that newcomers from Southern and Eastern Europe were both biologically inferior to 'old stock' Americans and rapidly multiplying. In 1924, the Immigration Restriction Act sharply reduced the total number of allowable entrants, and, through adoption of a quota system, reduced to a trickle new entrants from Russia, Poland, the Balkans and Italy.<sup>58</sup>

The most extensive and brutal eugenic measures were adopted in Germany. The 1933 Law for the Prevention of Genetically

Diseased Offspring, passed soon after Hitler's ascent to power, encompassed a wide range of ostensibly heritable conditions, and applied also to the non-institutionalised; it ultimately affected about 400,000 people (compared with about 60,000 in the United States). But German *Rassenhygiene* involved much more than a massive programme of sterilisation. The Nuremberg Laws barred Jewish-German marriages. The *Lebensborn* programme encouraged racially 'pure' German women, both single and married, to bear the children of SS officers. The Aktion T-4 programme and its various sequels 'euthanised' (the euphemism for murder by gassing, starvation and lethal injection) up to 200,000 of the country's institutionalised mentally and physically disabled, sometimes with the tacit consent of their families.<sup>59</sup> The penal system was reformed so that many minor offenders were punished with death in order to counter the dysgenic effects of war.<sup>60</sup> These policies of ruthless selection were a prelude to extermination of Jews and other racial and political undesirables. Efforts to maintain racial purity and rid the country of 'useless eaters' often employed Darwinian rhetoric: survival of the fittest, selection and counterselection. That language had wide resonance, for Darwinism was particularly popular in Germany.

#### VIII FROM DARWIN TO HITLER?

Nowhere did the *Origin* have a greater initial impact than Germany, where the book appeared in translation within a year of its publication in English. Many scientists endorsed Darwin's theory, which was also widely popularised, most effectively by the University of Jena zoologist, Ernst Haeckel. Both liberals and Marxists were enthusiastic. Indeed, Karl Marx's friend Wilhelm Liebknecht reported that, following publication of the *Origin*, he and his comrades 'spoke for months of nothing else but Darwin and the revolutionizing power of his scientific conquests'.<sup>61</sup> The response in Germany was so enthusiastic that in 1868 Darwin wrote that, 'the support which I receive from Germany is my chief ground for hoping that our views will ultimately prevail'.<sup>62</sup>

In the 1860s and 1870s, the political uses of Darwinism in Germany had been predominantly subversive.<sup>63</sup> Given the failure of the Revolution of 1848, the aristocracy and the Catholic Church remained powerful forces, especially in Prussia, the most important of

the German states. Socialists of all stripes saw that Darwin's theory could be appropriated both to argue for the inevitability of progressive change and against religion. Marxian socialists (including Marx himself) were often uncomfortable with the Malthusian element in Darwinism. As with many of Darwin's interpreters elsewhere, they tended to downplay natural selection in favour of Lamarckian and other evolutionary mechanisms, and also to deny that biological laws could be directly applied to society. Other Marxists and many non-Marxists read socialism directly from Darwinism. But irrespective of their specific interpretations of Darwin, nearly all socialists saw him as an ally. Works on his theory flowed from the German socialist press; it was the most popular non-fiction topic among workers.<sup>64</sup> Indeed, workers were generally more inclined towards scientific than economic and political titles, and vastly more interested in Darwin than the difficult-to-understand Marx.<sup>65</sup> The embrace of Darwinism by the Left led a puzzled Darwin to comment in 1879: 'What a foolish idea seems to prevail in Germany on the connection between Socialism and Evolution through Natural Selection.'<sup>66</sup>

Liberals also viewed Darwinism as an ally in their war with the Catholic Church, the monarchy and the *Junkers* (conservative noble land-owners). Haeckel's popular writings of this period express primarily liberal ideals and aspirations: laissez faire, anti-clericalism, intellectual freedom, anti-militarism, an end to inherited privilege. The nobility has no right to feel privileged, he argues, given that all human embryos – of nobles as well as commoners – are indistinguishable in their early stages from those of dogs and other mammals, while war causes the deaths of the bravest and strongest German youths.<sup>67</sup> The 'Monist League' Haeckel founded was a pacifist organisation.<sup>68</sup>

But there had always been an authoritarian and nationalist element in the German liberal programme, which gave it a distinctive character. After the failure of the 1848 revolution, German liberals supported not only economic laissez faire but a strong state and national unity, which they thought feasible only under the leadership of authoritarian Prussia.<sup>69</sup> Otto von Bismarck, Prussia's chief minister, also won liberal approval with his *Kulturkampf* of the 1870s against the Catholic Church. The achievement of national unity under Bismarck converged with the growing power of the working class, especially after the unification of the two working-class

parties in 1875, to move liberals further to the right. Even in the 1860s, Haeckel had denounced the use of modern medicine to enable the diseased to survive and pass on their afflictions. By 1877, he was engaged in a vicious debate with Rudolf Virchow over the connection between Darwinism and socialism, asserting that 'if this English hypothesis is to be compared to any definite political tendency... that tendency can only be aristocratic, certainly not democratic, and least of all socialist'.<sup>70</sup> (After reading an English translation of Haeckel's anti-Virchow polemic, Darwin wrote to the author that 'I agree with all of it'.<sup>71</sup>)

German Darwinism would become increasingly – though never uniformly – reactionary. By the 1890s, it was most often read to imply the necessity of competitive struggle, especially among groups, and linked to racism, imperialism and suppression of working-class demands. Modern society was now seen as counter-selective; degeneration could be reversed only through the active efforts of the state. In 1892, when Bismarck visited the University of Jena, he was embraced by Haeckel, who awarded him an honorary doctorate.<sup>72</sup> Particularly revealing is the outcome of the famous essay competition sponsored by the German munitions manufacturer and amateur zoologist, Friedrich Alfred Krupp. In 1900, Krupp offered the huge prize of 10,000 marks for the best essay on the question: 'What can we learn from the theory of evolution about domestic political development and state legislation?' Deeply hostile to socialism, his aim was apparently to demonstrate that Darwinism was not a threat to the state.<sup>73</sup> Most of the sixty entrants (including the forty-four from Germany) read Darwin as legitimising state intervention, both in the economy and breeding. Only a few essays were written from a socialist perspective, and a lonely one from a classical liberal perspective.<sup>74</sup>

Whereas in Britain, the First World War provoked many Darwinians to reevaluate the evolutionary consequences of warfare, in Germany, it reinforced the view of war as nature's way of ensuring the survival of the fittest. As a representative of the neutral commission for civilian relief, the American evolutionist Vernon Kellogg was assigned to the Headquarters of the German army in France and Belgium. From this unusual vantage point, he observed that German officers openly defended aggressive militarism as a corollary of Darwinism:

The creed of the *Allmacht* of a natural selection based on violent and competitive struggle is the gospel of the German intellectuals; all else is illusion and anathema. . . . as with the different ant species, struggle – bitter, ruthless struggle – is the rule among the different human groups. This struggle not only must go on, for that is the natural law, but it should go on, so that this natural law may work out in its cruel, inevitable way the salvation of the human species.<sup>75</sup>

In the devastating aftermath of that war, eugenics came to be seen as crucial to collective survival. German eugenicists had earlier focused on positive eugenics – efforts to encourage breeding by the more desirable types. But as the economic crisis deepened, the cost of caring for the disabled in hospitals and asylums became an obsession, and the racist element in eugenics came to the fore. The Society for Racial Hygiene was once dominated by technocratic elitists, who struggled with Nordic supremacists. By the 1920s, the latter were in the ascendancy.

Thus, as many historians have stressed, the path from Darwin to Hitler was hardly a straight one.<sup>76</sup> In Germany, as elsewhere, evolutionary theory provided a resource for groups with disparate agendas, including socialists and other radicals, free-market and collectivist-oriented liberals, Fascists, eugenicists who opposed racism and racial purists. Indeed, it was the variety of interests which Darwinism initially served in Germany that explains why the theory was so widely and enthusiastically embraced. The continuing association of evolutionism with progressive causes, especially anti-militarism, explains why in 1935 the Nazis ordered that the works of nearly all the popular Darwinists, including Haeckel, be purged from libraries.<sup>77</sup>

That is not to say that Darwinism was infinitely plastic. In Germany as elsewhere, the social and religious views of classical conservatives made Darwinism hard to digest; the Catholic Church in particular remained a potent foe. But nearly every other group found what it needed in Darwin. Of course their ability to impose their particular reading depended on specific social conditions. In the immediate aftermath of the *Origin*, Darwinism was generally read as undermining religion and, for liberals, as legitimising laissez-faire. By the turn of the century, it was seen to justify collectivist-oriented social reform, colonialism and eugenics. While there were national

variations, the trend from individualist to collectivist readings of Darwin was general. But only in Germany would Darwin come to be widely read as vindicating an active programme of extermination of the physically and racially 'unfit' – demonstrating how crucial is context. Darwin's metaphorical style and the ambiguities in his writings made many readings possible, but particular social and political circumstances determined which reading would prevail.

## IX CONCLUSION

Darwin was not an original social thinker. His writings reflect assumptions conventional for a man of his time and class. Virtually everything he had to say on social matters – concerning the value of population pressure and inheritance of property, the naturalness of the sexual division of labour, and the inevitability of European expansion – can be found in Malthus, Spencer, Wallace, Greg, Bagehot and other contemporary writers.

Darwin's importance for social thought and institutions lay elsewhere. First, publication of the *Origin* was a crucial step on the road to modern eugenics. Darwin as well as his readers assumed that natural selection resulted in the constant improvement of organic beings. Thus progress depends on struggle for existence. When applied to humans, it followed that interference with this struggle would prove harmful. If improvement were to continue, it would either be necessary to withdraw the humanitarian measures that interfered with selection, or to counter their effects through a programme of artificial selection, or both. The alternative was degeneration.

That was the conclusion reached by most Darwinians in the decade following publication of the *Origin*, and also by Darwin, after much wavering, in the *Descent of Man*. Darwin himself opted for living with the bad consequences of the less capable outbreeding what he called 'the better class of men'. In the end, he could sanction neither a withdrawal of charity nor active intervention with human breeding. Darwin was thus not a 'eugenicist', or certainly not a fully-fledged one. But his theory fuelled fears that made the need for a programme of selective breeding seem dire. It is no coincidence that Galton, the founder of modern eugenics, was his cousin – or that Leonard Darwin, President of the Eugenics Society in Britain in the 1910s and 1920s, was his son.

Eugenics was only translated into a practical programme when it was linked to modern genetics, evidence of the high fertility of those at the bottom of the social scale, and a more positive view of the functions of the state. Support for eugenics has waxed and waned over the succeeding years, but the concerns that inspired it have never disappeared. For example, the authors of *The Bell Curve* (1994) warn of the threat to modern society represented by the profligate breeding of an underclass. They attribute social failure to low intelligence, which they believe is largely determined by heredity. Should members of this underclass continue to breed at a more rapid rate than their intellectual superiors, the general cognitive level of the population will inevitably decline, resulting in a host of social problems.<sup>78</sup> The huge sales of the book indicate that old fears linger, and are easily ignited.

Darwinism also continues to furnish a resource for advocates of diverse political and social causes. In the works of some professional and many popular sociobiologists and evolutionary psychologists, it is deployed to argue for the naturalness of territoriality, competition and traditional gender roles. Others read in Darwin the opposite messages. The philosopher Peter Singer has recently called for a new Darwinian Left, which 'takes seriously the fact that we are evolved animals'.<sup>79</sup> It should acknowledge that there is a real human nature, which constrains our behaviour. This nature includes competitive but also social and cooperative tendencies on which the Left can build. (Singer also hopes that recognition of our continuity with other animals will make us less likely to exploit them.)

As a resource, has Darwinism mattered? In 1906, Graham Wallas reported on a clergyman's response to his remark that many people now accepted Darwin's view of human evolution. 'Yes', he said, 'we all accept it, and how little difference it makes.'<sup>80</sup> Some scholars agree that its actual impact has been slight. In their view, Darwinism merely provided window-dressing for social theories that predated it and would surely have flourished in its absence.<sup>81</sup> Thus, writing on British imperialism in the late nineteenth century, Paul Crook notes that 'Darwinistic themes were used primarily as slogans, propaganda, crude theater, cultural extravaganza', and that it is possible to find only a very few 'serious' theoretical works (and those little read) linking Darwinism to empire.<sup>82</sup>

It is doubtless true that many popularisers misunderstood Darwin. (Darwin's own ambiguities, hesitations and waverings made that

easy.) Some might not even have read him. That would also be true for Marx, Freud and many other major thinkers. But the social power of a theory has never depended on a detailed or correct understanding by its interpreters. In particular contexts, the Darwinian discourse of struggle and selection gave old ideas about competition, race and gender a new credibility. In Germany, as the historian Richard Evans has argued, what the Nazis obtained from Darwin was not a coherent set of ideas or well-developed ideology but a language. The rhetoric associated with the Nazi variant of social Darwinism was effective in justifying Nazi policies, for it 'helped reconcile those who used it, and for whom it had become an almost automatic way of thinking about society, to accept the policies the Nazis advocated and in many cases to collaborate willingly in putting them into effect'.<sup>83</sup> It is true that every social idea justified by reference to Darwin predated his work, and that many who invoked him lacked a firm grasp of his views. Darwinism's main contribution to social theory has been to popularise certain catchwords. But this is not to minimise its importance. Today, as in the past, rhetoric can be a potent resource.

## NOTES

1. Bryan [1924] 1967, 547-8.
2. Dennett 1995, 393.
3. Greene 1981 remains the most balanced account of Darwin's social views.
4. C. H. Smith 1991, 13-14.
5. Wallace [1864] 1991, 21.
6. Galton 1865.
7. Quoted in Jones 1998, 9.
8. Greg 1868.
9. Bagehot [1872] 1974, 47-8, 55-8.
10. Wallace 1870.
11. Marchant 1916, 199; R. J. Richards 1987, 186.
12. Durant, 1985, 293-4; Desmond and Moore 1991, 579. For further complementary discussion of Greg and Wallace on these topics, see Richards, this volume.
13. See Keynes 1988, 45, 58, 79-80, 173-4; Barrett *et al.*, 1987, *Charles Darwin's Notebooks, Notebook C*, MS p. 154 - hereafter C154; Gruber, 1981, 18.
14. C. Darwin [1860] 1962, 433-4.

15. See Keynes 1988, 172, 408; F. Darwin [1888] 1969, 1, 316.
16. Browne 1995, 237-8.
17. Keynes 1988, 139.
18. C. Darwin [1871] 1981, 1, 35.
19. C79; C. Darwin [1871] 1981, 1, 62; Knoll 1997, 14.
20. C. Darwin [1871] 1981, 1, 404-5.
21. C. Darwin [1871] 1981, 1, 162.
22. C. Darwin [1871] 1981, 1, 160, 166, 169.
23. C. Darwin [1871] 1981, 1, 167-8.
24. C. Darwin [1871] 1981, 1, 168-9.
25. C. Darwin [1871] 1981, 1, 174, 77.
26. Wallace 1905, 509.
27. C. Darwin [1871] 1981, 1, 180.
28. C. Darwin [1871] 1981, 11, 403.
29. C. Darwin [1871] 1981, 1, 170.
30. Desmond and Moore 1991, 327, 396-8, 648, 655.
31. C. Darwin [1871] 1981, 1, 169.
32. Weikart 1995, 610-11.
33. J. R. Moore 2001, 12-16.
34. C. Darwin 1859, 62.
35. Weikart 1998a.
36. F. Burkhardt *et al.*, 1985-2001, *Correspondence* VIII, 189.
37. J. R. Moore 1986, 62; cf. Shapin and Barnes 1979; Young 1985b.
38. R. Hofstadter 1944, 6-7.
39. Mitman 1997.
40. Quoted in Stepan 1987, 137.
41. Crook 1994, 7.
42. Stepan 1987, 140-1.
43. Stepan 1987, 138-42.
44. Hawkins 1997, 251-7; see also Russett 1989.
45. Bellamy 1888, 179.
46. On Gilman, see Doskow 1997.
47. See R. J. Richards 1987, 243-313, 325-30; also Wallace 1905, 27.
48. Spencer [1851] 1970, 379.
49. Bowler 1990, 170-1; for a similar view, see Kaye 1997, 26-35.
50. Hofstadter 1944; J. R. Moore 1985.
51. Quoted in Degler 1991, 12.
52. La Vergata 1985, 960.
53. Bagehot [1872] 1974, 22-3.
54. Jones 1980; Hawkins 1997, especially 26-35; and J. R. Moore 1986, 35, 65.
55. Jones 1980, 108; Bellomy 1984, 118.

56. Bannister 1979, 166.
57. For a more detailed account of these developments, see Paul 1995.
58. Perhaps the most direct evolutionary arguments on behalf of immigration restriction were by socialists. See Pittinger 1993.
59. On the 'euthanasia' programme, see Burleigh 1994.
60. R. J. Evans 1997, 55-6.
61. Liebknecht 1901, 91-2.
62. Quoted in Weikart 1993, 471.
63. Benton 1982, 89-91; Weikart 1993, 472-3; Weindling 1991, 16; Weindling 1998.
64. Weikart 1998b, 2.
65. For a detailed discussion of German workers' reading preferences, see Kelly 1981, 128-41.
66. F. Darwin [1888] 1969, 111, 237.
67. Benton 1982, 92, 94.
68. R. J. Evans 1997, 64.
69. Benton 1982, 90.
70. Haeckel 1879, 92.
71. Quoted in Weikart 1998a, 25.
72. de Rooy 1990, 15.
73. Weiss 1987, 68.
74. de Rooy 1990, 14; Weiss 1987, 72, 74.
75. Kellogg 1917, 28-9.
76. Perhaps the only historian to argue that there was a straight path from Darwin to Hitler (via Haeckel) is Gasman 1971.
77. de Rooy 1990, 16.
78. Herrnstein and Murray 1994. For a nuanced discussion of the relation of their work to 'social Darwinism', see Dickens 2000, 64-80.
79. Singer 1999, 6.
80. Quoted in Bellomy 1984, 126.
81. Burrow 1966; Bannister 1979.
82. Crook 1998, 1.
83. R. J. Evans 1997, 78.