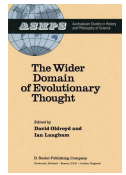


DARWIN AND THE DESCENT OF WOMAN

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This is the Question

MARRY

Children – (if it please God) – constant companion, (friend in old age) who will feel interested in one, object to be beloved and played with – better than a dog anyhow – Home, and someone to take care of house – Charms of music and female chit-chat. These things good for one's health. Forced to visit and receive relations *but terrible loss of time* . . .

Only picture to yourself a nice soft wife on a sofa with good fire, and books and music perhaps – compare this vision with the dingy reality of Grt Marlboro' St. Marry – Marry – Marry. Q. E. D.

NOT MARRY

No children (no second life), no one to care for one in old age . . .

Freedom to go where one liked – Choice of Society *and little of it*. Conversation of clever men at clubs . . .

Loss of time – cannot read in the evenings – fatness and idleness – anxiety and responsibility – less money for books etc . . .

Perhaps my wife won't like London; then the sentence is banishment and degradation with indolent idle fool –

CHARLES DARWIN, *Notes on the Question of Marriage*, 1837–8.¹

A growing number of social historians and sociologists of science have come to think of scientific knowledge as a 'contingent cultural product, which cannot be separated from the social context in which it is produced', and they have begun to explore the possibility of there being direct 'external' or what are generally regarded as 'non-scientific' influences on the content of what scientists consider to be genuine knowledge.² In their view, scientific assertions are 'socially created and not directly given by the physical world as previously supposed'.³ This is not to assert that science is merely a matter of convention – that the external world does not constrain scientific conclusions – but rather that scientific knowledge 'offers an account of the physical world which is mediated through available cultural resources; and these resources are in no way definitive'.⁴ This view undercuts the special epistemological status generally accorded to scientific knowledge, whereby it is assumed to be value-free and politically and

socially neutral. In this revised view of science, the basis of the traditional distinction between scientific and social thought is eliminated, and as a consequence, the customary contrast between 'internal' intellectual and 'external' social factors in the history of science loses its significance. It becomes possible to consider scientific knowledge as socially contingent and an understanding of the socially derived perspectives of the knowers and their purposes becomes essential to coherent historical explanation of scientific knowledge. This paper is an attempt to examine and explain Charles Darwin's conclusions on the biological and social evolution of women in the light of this revised view of scientific knowledge.

The Darwinian theory of evolution is the subject of a large and growing literature, but most historians have treated its content and its reception as independent of the social context in which it was conceived and accepted into the body of scientific knowledge. With few exceptions, Darwin is presented as the young naturalist of the 'Beagle', subsequent pigeon breeder and barnacle dissector and, above all, detached and objective observer and theoretician – remote from the political concerns of his fellow Victorians who misappropriated his scientific concepts to rationalize *their* imperialism, laissez-faire economics and racism. The congruence of his writings, especially *The Descent of Man*, with the flourishing Social Darwinism of the late Victorian period, is either ignored or tortuously explained away and Darwin himself absolved of political and social intent and his theoretical constructs of ideological taint.⁵

The handful of Darwin studies like those of Young and Gale⁶ which does not conform to this historical orthodoxy but has been concerned to depict Darwin's evolutionary theory as embedded in an ideological context, has focussed on the concept of natural selection and the associated themes of struggle and adaptation. As far as I am aware, no similar 'contextualist' or 'naturalistic'⁷ study has been made of Darwin's concept of sexual selection and his related conclusions on the biological and social evolution of women. In fact, these have received scant attention from more orthodox scholars, who have also focussed on natural selection. Michael Ghiselin is one of the few of the orthodox to have dealt in any detail with sexual selection, which he did in his 1969 work, *The Triumph of the Darwinian Method*.⁸ Ghiselin's analysis has the virtue of taking into account the whole corpus of Darwin's writings, including *The Descent of Man* and the early Notebooks, but is skewed by his determination to present Darwin as an unswerving scientific adherent of the hypothetico-deductive method and a

good Popperian, like Ghiselin himself.⁹ Thus social and political factors are systematically excluded from his account, and not surprisingly, sexual selection emerges as Darwin's 'brilliant' value-free hypothesis, deductively consistent with his over-all evolutionary thesis.¹⁰ Ghiselin manages the *tour de force* of an analysis of sexual selection and *The Descent of Man* without ever coming to grips with Darwin's extension of sexual selection to human biological and social evolution, which I shall show was the main thrust of *The Descent*. This deficiency however has been more than amply remedied in Ghiselin's subsequent work *The Economy of Nature and the Evolution of Sex*¹¹ where he has turned his hand to applying Darwin's theory to society and reveals himself as the ultimate Social Darwinist, or, more correctly, defender and advocate of genetic capitalism.¹² Ghiselin introduces his book as a 'cross between the *Karma Sutra* and the *Wealth of Nations*' and deals in such provocative chapter headings as 'The Copulatory Imperative...', 'Seduction and Rape...' and 'First Come, First Service...'. As these headings indicate, the book is largely a vindication and extension of Darwin's 'long-neglected' idea of sexual selection. For Ghiselin, if we are to understand why men and women behave as they do, we must treat them as the products of reproductive competition – of a prolonged and enduring sexual contest. This conclusion becomes inescapable, once we have accepted Darwin's theory. Even our moral sentiments subserve reproduction:

[O]ne would predict that there should be certain kinds of sexual dimorphism in our ethical attitudes. Females know who are their offspring: hence it is expedient for them to play favourites. Males, in so far as they find it difficult to know who fathered whom, would perhaps benefit more from a general contribution to the welfare of their group. Loyalty should thus be a feminine virtue, justice a masculine one ... Recent research has brought to light quite a number of differences between the sexes in moral attitudes, at least some of which seem to be inherited ...¹³

It has been left to feminist scholars who are concerned with disputing evolutionary arguments like Ghiselin's, to explore the social dimensions of Darwin's writings on the biological and social evolution of women. They are unanimous in their categorization of them as catering to and supporting a prejudiced and discriminatory view of women's abilities and potential – one unsupported by evidence and based upon Victorian sexist ideology.¹⁴ The small section of the appropriately named *Descent of Man*, where Darwin deduced the natural and innate inferiority of women from

his theory of evolution by natural and sexual selection, is fast becoming notorious in feminist literature.

The most extensive feminist critique of Darwin has been undertaken by Ruth Hubbard, Professor of Biology at Harvard. Hubbard has been readily able to point to passages in Darwin's writings to support her charge of 'blatant sexism'.¹⁵ She places late-Victorian scientific sexism and its contemporary re-emergence in ethology and sociobiology squarely at Darwin's door. Contemporary ethologists and sociobiologists she asserts, are conducting their arguments within the context of nineteenth-century anthropological and biological speculation. Nineteenth-century anthropology and biology were dominated by Darwin, whose *Origin of Species* and *Descent of Man* provided the theoretical framework within which anthropologists and biologists have ever since been able to endorse the social inequality of the sexes.

Where Ghiselin sees only clear-eyed scientific judgement and a vindication of his own values, Hubbard sees only cloudy male bias and confirmation of her own perspective of male domination and female exploitation. If Ghiselin refuses to concede any but intellectual and theoretical constraints on Darwin's constructs, Hubbard as systematically excludes them. She goes so far as to imply that Darwin's theory of sexual selection was generated as a male scientist's response to the perceived threat of nineteenth-century feminism.¹⁶

This paper goes beyond Hubbard's charge of sexism and anti-feminism by locating Darwin's theoretical constructs and Darwin himself in their larger social, intellectual and cultural framework. Without this framework the larger social, political and epistemological questions are never confronted and the issues dwindle to ones of personal bias. While I agree with Hubbard that Darwin's concept of sexual selection and his application of it to human evolution were contingent upon his socially derived perceptions of feminine characteristics and abilities, I argue in this paper that it is not only historically incorrect to impute an anti-feminist motive to Darwin, but unnecessary.

It is historically incorrect, because Darwin's conclusions on the biological and social evolution of women were as much constrained by his commitment to a naturalistic or scientific explanation of human mental and moral characteristics as they were by his socially derived assumptions of the innate inferiority and domesticity of women, as I argue in Section I. It is unnecessary, because in order to demonstrate that Darwin's re-

construction of human evolution was pervaded by Victorian sexist ideology, one has only to examine his lived experience as Victorian bourgeois husband and father, as I do in Section II of this paper, and relate it to his theoretical arguments. Generally, the domestic relations of Charles and Emma Darwin have been of interest to historians only in so far as Charles' deference to Emma's religious beliefs offers a ready-made explanation of the twenty year delay between the inception of his theory of evolution and its publication. However, I argue that his relations with Emma had a more fundamental and enduring effect on his theory of evolution than this. Just as contextualists have argued that Darwin's concepts of artificial and natural selection were not directly based on biological phenomena, but were in some degree taken over from the practical activities of the plant and animal breeders with whom he associated and whose commercial criteria and interests he absorbed,¹⁷ so I argue that Darwin's experience of women and his practical activities of husband and father entered into his concept of sexual selection and his associated interpretations of human evolution. To this end I demonstrate in Section II that Darwin's domestic relations in no way called into question Victorian sexual stereotypes but entirely conformed with them.

In Section III I carry this analysis further and locate both the content of Darwin's theory of human evolution and his domestic relations in the larger context of Victorian society. Here, both feminism and Darwinism are related to the nineteenth-century naturalist movement, which was concerned with bringing the whole of nature and society under the sway of natural law and improving the social standing of science. In the process, naturalism was brought into opposition to the traditional authority and status of religion and into line with those of the newly-powerful bourgeoisie, whose interests it promoted and rationalized under the universality and inevitability of natural law. Darwin's *Origin of Species* and *Descent of Man* and the intense public debate they engendered in the mid-Victorian period, are viewed as central to this transition and were shaped and constrained by it. When the bourgeois social order began to perceive the growing feminist movement as a threat, late-Victorian Darwinism was brought into conflict with feminism and imposed naturalistic scientific limits to the claims by women for political and social equality, thus effectively undermining feminism which subscribed to the same naturalistic ideology. Finally, Darwin's rôle in late-Victorian scientific opposition to feminism is assessed in the light of the above analysis.

My analysis thus proceeds on three inter-related levels and is organized in conformity with this.

I. THE DESCENT OF WOMAN

Even the preliminary knowledge, what the differences between the sexes now are, apart from all questions as to how they are made what they are, is still in the crudest and most incomplete state. Medical practitioners and physiologists have ascertained, to some extent, the differences in bodily constitution . . . Respecting the mental characteristics of women; their observations are of no more worth than those of common men. It is a subject on which nothing final can be known, so long as those who alone can really know it, women themselves, have given but little testimony, and that little, mostly suborned. – *The Subjection of Women*¹⁸

In *The Descent of Man: or Selection in Relation to Sex* (1871), Darwin applied himself for the first time in his published writings to the highly contentious problem of human evolution. Twelve years earlier, in *The Origin of Species*, he had made only one brief allusion to the topic: 'light will be thrown on the origin of man and his history'. But where Darwin had hesitated, others had not, and by 1871 various 'Darwinians' (including prominent naturalists, anthropologists, and social theorists) had published their views on 'man's' origin and offered speculative reconstructions of 'his' history. To some extent Darwin was pre-empted, but in several significant respects he was not.

He was, after all, the author of *The Origin* and a number of other respected scientific works, whose hard-earned reputation was acknowledged even by his critics, while his increasing number of converts might be expected to treat his long-awaited views on human evolution as authoritative. By the late 1860s, Darwin was under considerable pressure to reveal these views.¹⁹

Secondly, these views had matured over a very long period of time. More than thirty years earlier Darwin had begun to record his ideas and notes on transmutation, and from the first he was convinced that humanity was part of the evolutionary process. The questions he then posed on the evolution

of human instinct, sexual differences, emotion, language, intelligence and sociability, and which were crucial to the formation of his theory of evolution, were suppressed while he very consciously drained his argument of references to human evolution for presentation to his scientific and lay audience. With the resolution of the post-*Origin* debates of the 1860s more or less in favour of evolution, and the dwindling of hard-core opposition to the theory, the time had come to reinsert men and women alongside pigeons, barnacles and orchids, and subject them to the same evolutionary processes. The Notebooks, especially those on 'Man, Mind and Materialism' that Darwin began to keep in the late 1830s were the basis of *The Descent*.²⁰ They are a repository of observations and reflections on the continuity between human and other animals, and they document Darwin's growing conviction that only a materialist philosophy of nature can support the treatment of human development in a natural scientific manner. They were, in effect, a testing ground for the disputes of the '60s, which revolved around just these issues. *The Descent* is the logical extension of these notebook constructions.

Darwin had a further impetus towards publication in the failure of two of those he had most counted on to promote his views on human evolution. In 1863, his long-standing patron Charles Lyell had burked the issue in his *Antiquity of Man*. Despite his private reassurances to Darwin that he was prepared to 'go the whole orang', Lyell, when it came to the point, suggested that man was the result of a leap of nature separating him at one bound from the next highest species, the whole being 'the material embodiment of a pre-concerted arrangement'.²¹ Darwin was bitterly disappointed by the equivocation of the extremely influential but conservative Lyell. However, the following year his hopes were raised by Alfred Russel Wallace, co-founder with Darwin of the theory of natural selection. In 1864, Wallace, at this stage strongly influenced by Herbert Spencer, published an article in the *Anthropological Review*,²² in which he argued the central rôle of natural selection in the intellectual and moral progress of humanity. Darwin was greatly impressed by Wallace's paper and wrote his approbation, going so far as to offer him his own notes on 'Man' and a few suggestions on the origin of the different races via sexual selection.²³ Whatever hopes Darwin may have entertained of Wallace in this respect were quickly dashed. Wallace not only rejected his ideas on the part played by sexual selection in human evolution, but within a remarkably short time retracted his belief in the all-sufficiency of natural

selection in human physical, social, and mental development. By 1869, Wallace inspired by his growing socialist and spiritualist beliefs, was suggesting that a 'higher intelligence' had guided the development of the human race and anticipated its needs.²⁴

The recourse by two of his most prominent scientific supporters to supernatural explanations (however different) of human faculties and abilities undoubtedly reinforced Darwin's determination to demonstrate that there was 'no necessity', as he wrote to Wallace, 'for calling in an additional and proximate cause in regard to man'.²⁵ For Darwin, the human races were the equivalent of the varieties of plants and animals which formed the materials of evolution in the organic world generally, and they were subject to the same main agencies of struggle for existence and the struggle for mates. Human evolution could be entirely explained in terms of natural evolutionary processes and the continuity between the complex human faculties and their animal ancestry established.

This leads us to Darwin's emphasis on the overriding importance of sexual selection in human evolution. In fact, the major theme of *The Descent*, as the full title indicates, was sexual selection, with the greater part of the work being devoted not to human evolution, but to an elaboration of the principles of sexual selection and its exhaustive application to the various members of the animal kingdom, humanity included. For in Darwin's view, sexual selection was primarily responsible for human racial and sexual differences, not just physical differences, but what he called differences in 'the mental powers', that is, emotional, intellectual and moral differences.

Darwin had briefly discussed sexual selection in *The Origin*, and carefully distinguished it from natural selection:

[Sexual selection] depends, not on a struggle for existence, but on a struggle between the males for possession of the females; the result is not death to the unsuccessful competitor, but few or no offspring. Sexual selection is, therefore, less rigorous than natural selection. Generally, the most vigorous males, those which are best fitted for their places in nature, will leave most progeny. But in many cases, victory will depend not on general vigour, but on having special weapons, confined to the male sex.²⁶

Apart from male combat for possession of the females, Darwin recognized another aspect of sexual selection – female choice. This occurred especially among birds, where the males competed with one another in brilliance of plumage, song, etc., in their wooing of the female during courtship. Sexual

selection could be invoked to explain a great deal that otherwise seemed inexplicable in terms of natural selection, such as the bright plumage of many male birds that renders them more conspicuous to predators, or the disadvantageously long, curved horns of an antelope. Such structures did not confer any advantage in the struggle for existence, but they were advantageous in the struggle for mates and thus gave their possessors a better chance of reproducing themselves, of leaving more offspring than other less well-endowed males. As Darwin succinctly expressed it in *The Origin*:

[W]hen the males and females of any animal have the same general habits of life, but differ in structure, colour, or ornament, such differences have been mainly caused by sexual selection; that is, individual males have had, in successive generations, some slight advantage over other males, in their weapons, means of defence, or charms; and have transmitted these advantages to their male offspring.²⁷

Sexual selection was vital to Darwin's defence of natural selection against the established theory of special creation. Apart from its importance in explaining the persistence of seemingly disadvantageous or useless characteristics, it enhanced the action of natural selection by ensuring that the fittest males ('the most vigorous males, those which are best fitted for their places in nature') were reproduced. The accumulation of advantageous variation would therefore be all the more probable. Thus, although so little space was given to sexual selection in *The Origin*, it was of considerable importance to Darwin's theory of evolution.

At this stage, it should be noted that in Darwin's initial presentation of sexual selection, attention is focussed on the *males* who compete actively with one another for the females. Even in cases of female choice, males compete to display before the females 'which standing by as spectators, at last choose the most attractive partner'; though of a 'more peaceful character' it is still a contest and it is the males who play the active rôle, who 'struggle', female choice being depicted as passive. In *The Origin* sexual selection is a process whereby males compete with other males by means of weapons or charms to reproduce themselves. The female rôle is merely one of submission to and transmission of these male characteristics. As a description of sex roles in reproduction, it is undeniably androcentric.²⁸

When it came to human evolution, Darwin's androcentric bias became even more pronounced, with female choice, however passive, being all but swamped by male combat and male aesthetic preference in the shaping of

racial and sexual differences. As Darwin first put it to Wallace in his letter of 1864:

I suspect that a sort of sexual selection has been the most powerful means of changing the races of man. I can show that the different races have a widely different standard of beauty. Among savages the most powerful men will have the pick of the women, and they will generally leave the most descendants.

A post-script intimated the Victorian class and cultural overtones of Darwin's perception of primitive human behaviour:

P. S. Our aristocracy is handsomer (more hideous according to a Chinese or Negro) than the middle classes, from [having the] pick of the women...²⁹

Wallace, the incipient socialist, dissented from both points of view by return of post, and touched off a long-standing dispute between the co-founders of natural selection on the efficacy of sexual selection in accounting for sexual and racial differentiation. Over the years the letters went back and forth: Wallace opting for the primacy of natural selection in the evolution of female protective colouration and other characteristics; Darwin continuing to focus on the evolution of male sexual differences through sexual selection, badgering naturalists and breeders for corroborative evidence and opinions. By the beginning of 1867, Darwin had accumulated so much material on sexual selection and was so convinced of its essential rôle in human evolution, that he decided to assemble his notes into an 'essay on Man', to fulfil the overall task that *The Origin* had set. He wrote of his intention to Wallace in February, 1867:

The reason of my being so much interested just at present about sexual selection is, that I have almost resolved to publish a little essay on the origin of Mankind, and I still strongly think (though I failed to convince you, and this to me is the heaviest blow possible) that sexual selection has been the main agent in forming the races of man.³⁰

The following month, Darwin again wrote to Wallace of his 'essay on Man':

[M]y sole reason for taking it up, is that I am pretty well convinced that sexual selection has played an important part in the formation of races, and sexual selection has always been a subject which has interested me much.³¹

Whatever their order of priority, it is clear that for Darwin human evolution and sexual selection had become inextricably linked together, and the structure of *The Descent* bears this out. It is divided into three

sections. The first part deals with 'The Descent or Origin of Man' and the main thrust of this section was to demonstrate that there was no fundamental difference between humanity and the higher animals – above all, that the 'difference in mind between man and the higher animals, great as it is, certainly is one of degree not of kind'. Thus Darwin saw the seeds of intelligence and social organization in the higher animals, and from these rudimentary beginnings evolved the complex human intellectual and moral characteristics that his critics argued were unique and lay outside the scope of evolutionary explanation. To this end he insisted that mental and moral differences were heritable and that natural selection, aided by the inherited effects of mental and moral exercise,³² had acted on them throughout history in the competition of individuals, tribes, nations, and races:

All that we know about savages . . . shew that from the remotest times successful tribes have supplanted other tribes . . . At the present day civilised nations are everywhere supplanting barbarous nations, excepting where the climate opposes a deadly barrier; and they succeed mainly, though not exclusively, through their arts, which are the products of intellect. It is, therefore, highly probable that with mankind the intellectual faculties have been mainly and gradually perfected through natural selection; and this conclusion is sufficient for our purpose.³³

Similarly, the 'social and moral faculties' such as sympathy, fidelity and courage 'were no doubt acquired . . . through natural selection aided by inherited habit'. Those who practised mutual aid would benefit and this would foster the habit of aiding one's fellows and strengthen feelings of sympathy and altruism. Such habits, followed during many generations, 'probably tend to be inherited'.³⁴

Darwin's insistence on the biological basis of intellectual and moral differences brought him into conflict with environmentalists like John Stuart Mill, who had argued in his *Utilitarianism* that the moral feelings are not innate but acquired. In a footnote, Darwin discussed his differences with Mill, but remained adamant:

It is with hesitation that I venture to differ at all from so profound a thinker, but it can hardly be disputed that the social feelings are instinctive or innate in the lower animals; and why should they not be so in man? Mr Bain . . . and others believe that the moral sense is acquired by each individual during his lifetime. On the general theory of evolution it is at least extremely improbable. The ignoring of all transmitted mental qualities will, as it seems to me, be hereafter judged as a most serious blemish in the works of Mr Mill.³⁵

This emphasis on nature rather than nurture as the source of complex

human behaviour, inevitably led Darwin into contradiction, which, as John C. Greene has pointed out, remained unresolved in *The Descent*:

On the one hand, natural selection had operated to strengthen the social and sympathetic feelings among men. On the other, these feelings had acted to inhibit the operation of natural selection in civilised societies, thereby posing a threat to the continued progress of mankind. Here was the dilemma Darwin was to wrestle with in *The Descent of Man* without achieving a resolution.³⁶

The result was that while Darwin acknowledged the influence of purely social and cultural factors in social evolution, he was convinced that in the long run social progress could not occur through environmental improvements alone; a severe competitive struggle was necessary to prevent humanity from sinking into moral and intellectual degeneracy, and he urged a Malthusian prescription for social improvement in the General Summary of *The Descent*:

[A]ll ought to refrain from marriage who cannot avoid abject poverty for their children; for poverty is not only a great evil but tends to its own increase by leading to recklessness in marriage. On the other hand, as Mr. Galton has remarked, if the prudent avoid marriage, whilst the reckless marry, the inferior members tend to supplant the better members of society. 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 if he is to advance still higher, it is to be feared that he must remain subject to a severe struggle, otherwise he would sink into indolence and the more 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.³⁷

In Darwin's hands, natural selection and the inheritance of acquired characteristics could therefore be invoked to explain a good deal more than mere genetic continuity with the lower animals. They explained and endorsed a number of assumptions which had assumed considerable social and political significance by 1871 – the superiority of the Anglo-Saxon (especially middle class Anglo-Saxons), the inevitable triumph of the more intellectual and moral races over the lower and more degraded ones, the primitive evolutionary status of the 'inferior' races and the continuing beneficent effects of competitive struggle in 'civilized' societies. However there were limits to their explanatory power, particularly in the areas of racial and sexual differentiation, and these too were areas of major social and political concern in mid-Victorian England. Here sexual selection assumed a prominence which was to dominate *The Descent*.

Darwin initially introduced sexual selection in *The Descent* at the close of Part I, as an explanation of racial differences such as skin colour, hair, shape of skull, proportions of the body, etc., which he assumed to be of no evident benefit and not to correlate with climate and racial habits and customs. However, like natural selection, sexual selection took on a much wider rôle in human evolution. Darwin summed up its effects in the General Conclusion:

He who admits the principle of sexual selection will be led to the remarkable conclusion that the nervous system not only regulates most of the existing functions of the body, but has indirectly influenced the progressive development of various bodily structures and of certain mental qualities. Courage, pugnacity, perseverance, strength and size of body, weapons of all kinds, musical organs, both vocal and instrumental, bright colours and ornamental appendages, have all been indirectly gained by the one sex or the other through the exertion of choice, the influence of love and jealousy, and the appreciation of the beautiful in sound, colour or form; and these powers of the mind manifestly depend on the development of the brain.³⁸

Thus, apart from its primary function of explaining the persistence of seemingly non-beneficial human racial and sexual physical differences, sexual selection explained the utility of the aesthetic sense, and accounted for its high human development. It also accounted for the evolution of other uniquely human traits such as speech and music, for Darwin argued that these derived from the courtship behaviour of our 'ape-like progenitors', females for instance, having acquired sweeter voices to attract the male; human speech having arisen from the probable effects of the long-continued use of the vocal organs of the male under the excitement of love, rage and jealousy. Sexual selection also of course accounted for the social inequality of the sexes, that aspect of its application with which this paper is most concerned and with which I shall deal in detail.

In all, there was a good deal riding on the efficacy of sexual selection in human evolution, and it becomes clear why Darwin devoted Parts II and III which comprise the major portion of *The Descent* to the demonstration of the general action of sexual selection throughout the animal kingdom and ultimately its extension to human evolution. *The Descent* does not comprise two books (one on human evolution and one on sexual selection) as has often been asserted, but is *one* book. Nor is its subject sex, as Ghiselin alleges.³⁹ Its subject is human evolution. The extensive middle section on sexual selection is there as part of Darwin's overall strategy in arguing towards a natural scientific explanation of all aspects of human evolution – an explanation that extends from animal behaviour to human

society and devolves on analogous courtship patterns of male combat and aesthetic preference in animals and humans.

Of course, as previously noted, Darwin conceded certain differences between animal and human courtship behaviour. In human evolution, aesthetic choice was exerted by the male, rather than the female as with the lower animals. The differing standards of beauty of the various races offered the explanation, via male aesthetic preference, of racial differentiation. 'Monstrous' as it might seem that the 'jet-blackness of the negro should have been gained through sexual selection',⁴⁰ Darwin was convinced that it was so. He was also certain that women's sweeter voices, absence of body hair, long tresses and greater beauty had all been acquired by male selection. The only physical trait he was inclined to attribute to female selection was that splendid Victorian emblem of virility, the beard.⁴¹ As he explained it to Wallace in a passage redolent with Victorian values:

A girl sees a handsome man, and without observing whether his nose or whiskers are the tenth of an inch longer or shorter than in some other man, admires his appearance and says she will marry him. So, I suppose, with the pea-hen; and the tail has been increased in length merely by, on the whole, presenting a more gorgeous appearance.⁴²

Apart from this limited concession to feminine influence, Darwin held to the conviction that male selection predominated among humans. This rôle reversal caused him some bother, as he indicated to Wallace who was still insisting on the 'greater, or rather, the more continuous, importance of the female (in the lower animals) for the race':

Nothing would please me more than to find evidence of males selecting the more attractive females [among the lower animals]. I have for months been trying to persuade myself of this. There is the case of man in favour of this belief... Perhaps I may get more evidence as I wade through my twenty years' mass of notes.⁴³

The problem was, as Darwin expressed it, that the male was the 'searcher' who had 'required and gained more eager passions than the female' – this made him ready to seize on any or many females without much regard to aesthetic preference.⁴⁴ How then had male humans become more discriminating? Without doubt they too were 'searchers', more passionate and eager than women, in fact natural polygamists, as Darwin argued in *The Descent*. The answer, as given in *The Descent*, was that man had seized the power of selection from woman:

Man is more powerful in body and mind than woman, and in the savage state he keeps her in a far more abject state of bondage, than does the male of any other animal; therefore it is not surprising that he should have gained the power of selection.⁴⁵

This in turn, invited the question: How had man become 'more powerful in body and mind than woman'? For it is not probable, as Darwin himself argued, that these differences had arisen through natural selection or through the inherited effects of men having worked harder for their subsistence than women: 'for the women in all barbarous nations are compelled to work at least as hard as the men'. The answer again lay in sexual selection, but in this case, through the alternative variant – male combat. Thus man's 'greater size and strength . . . courage and pugnacity' had been acquired during the 'long ages of man's savagery, by the success of the strongest and boldest men, both in the general struggle for life and in their contest for wives; a success which would have ensured their leaving a more numerous progeny than their less favoured brethren'.⁴⁶

Here Darwin could invoke the analogy with animal courtship patterns with confidence. There is evidence of male combat or contest for wives among existing savages, 'but even if we had no evidence on this head, we might feel almost sure, from the analogy of the higher Quadrumana, that the law of battle had prevailed with man during the early stages of his development'.⁴⁷

As for the mental differences between the sexes, here Darwin was aware that he was venturing on a contentious issue. He had read *The Subjection of Women* where Harriet Taylor and John Stuart Mill had argued that such differences as could be ascertained were culturally conditioned, not innate.⁴⁸ But, consistent with his earlier opposition to Mill on the heritability of the 'moral faculties', Darwin insisted that the 'differences in the mental powers of the two sexes' (and he emphasized considerable differences) were biologically based. Again he invoked the analogy with lower animals:

I am aware that some writers doubt whether there is any such inherent difference; but this is at least probable from the analogy of the lower animals which present other secondary sexual characters. No-one disputes that the bull differs in disposition from the cow, the wild-boar from the sow, the stallion from the mare, and, as is well known to the keepers of menageries, the males of the larger apes from the females.⁴⁹

On this basis Darwin proceeded to assert the instinctive maternal traits of the human female and the human male's innate aggressive and competitive characteristics. Woman's maternal instincts lead her to be generally more

tender and altruistic than man whose 'natural and unfortunate birthright' is to be competitive, ambitious and selfish. But above all man is more intelligent than woman:

The chief distinction in the intellectual powers of the two sexes is shewn by man's attaining to a higher eminence in whatever he takes up, than can woman – whether requiring deep thought, reason, or imagination, or merely the use of the senses and hands.⁵⁰

For Darwin, the intellectual differences between the sexes were entirely predictable on the basis of a consideration of the long-continued action of natural and sexual selection, reinforced by use-inheritance. Male intelligence would have been consistently sharpened through the struggle for possession of the females, through hunting and other male activities such as defence of the females and young. Intelligence thus acquired by males after sexual maturity would be inherited by male offspring at a corresponding period. Male pre-eminence has thus come about:

... partly through sexual selection, – that is, through the contest of rival males, and partly through natural selection, – that is, from success in the general struggle for life; and as in both cases, the struggle will have been during maturity, the characters gained will have been transmitted more fully to the male than to the female offspring... Thus man has ultimately become superior to woman.⁵¹

Reference must here be made to Darwin's notion of inheritance, which he had made clear in the earlier section on sexual selection. In brief, the tendency was for 'characters acquired by either sex late in life, to be transmitted to [offspring of] the same sex at the same age, and of early acquired characters to be transmitted to both sexes'.⁵² These rules, however, as Darwin acknowledged, did not always hold good. Indeed it was fortunate that they did not, and that in mammals late acquired characteristics were sometimes transmitted to both sexes 'otherwise it is probable that man would have become as superior in mental endowment to woman, as the peacock is in ornamental plumage to the peahen'. If they always held good, Darwin wrote, we could draw certain social conclusions from them '(but here I exceed my proper bounds)'. Nevertheless, he proceeded to argue that the inherited effects of the early education of boys and girls would be transmitted equally to both sexes, so a similar early education would do nothing to equalize the current intellectual differences between the sexes which would be maintained by the inherited effects of their very different mature rôles; nor, for the same reason, could these differences be attributed to the different early training of boys and girls. Rather, Darwin proposed:

In order that woman should reach the same standard as man, she ought, when nearly adult, to be trained to energy and perseverance, and to have her reason and imagination exercised to the highest point; and then she would probably transmit these qualities chiefly to her adult daughters.⁵³

The difficulty was that in order for the general level of feminine intelligence to be raised, such educated women would need to produce more offspring over many generations than their less educated sisters. The implication was that this was unlikely. Meanwhile, although male combat was no longer in operation in civilized societies, male intelligence would be constantly enhanced by the severe competitive struggle males necessarily underwent in order to maintain themselves and their families, and 'this will tend to keep up or even increase their mental powers, and, as a consequence, the present inequality between the sexes'.⁵⁴ The conclusion to be drawn from this was that the higher education of women could have no long-term impact on social evolution and was, biologically and socially, a waste of resources.

It is noteworthy that in support of his assertion of male intellectual superiority, Darwin did not deploy his favourite tactic of arguing by analogy from the lower animals. He argued solely in social terms of the lack of feminine eminence in the arts and sciences:

If two lists were made of the most eminent men and women in poetry, painting, sculpture, music . . . history, science, and philosophy . . . the two lists would not bear comparison.⁵⁵

Again, while he conceded that 'with woman the powers of intuition, of rapid perception, and perhaps of imitation, are more strongly marked than in man', he dismissed these faculties as 'characteristic of the lower races, and therefore of a past and lower state of civilisation'.⁵⁶

In order to understand the sense of this statement by Darwin, it is necessary to turn to the theory of recapitulation. This theory, epitomized in the unqualified and misleading slogan 'Ontogeny recapitulates Phylogeny' by the German morphologist and Darwinian Ernst Haeckel in 1866, became the cornerstone of late Victorian evolutionary theory. It functioned as the organizing principle for generations of work in comparative embryology, physiology, morphology and paleontology. In its pervasive influence on nineteenth-century social theory, psychology and anthropology, it was outstripped only by natural selection itself.⁵⁷ The idea that individual development is a recapitulation of ancestral stages was implicit in *The Origin* and Darwin himself had placed considerable emphasis on this embryological evidence of evolution. By the time *The Descent* appeared, the majority of Darwinians had uncritically adopted re-

capitulation and it figured prominently in Darwin's argument for the animal ancestry of humanity. More significantly, it underlay his conception of the development of human mental, social and ethical faculties.⁵⁸ For the study of human developmental stages was a method that allowed the reconstruction of human 'ancestors' and the ranking of races, depending on how closely their modern descendents could be correlated with the primitive forms revealed by the ontogeny of 'higher' races.

The recapitulatory argument for ranking extended beyond race to sex. It was a standard claim of recapitulationists that woman's development was arrested at the level of the child and the negro:

In the brain of the Negro the central gyri are like those in a foetus of seven months, the secondary are still less marked. By its rounded apex and less developed posterior lobe the Negro brain resembles that of our children, and by the protuberance of the parietal lobe, that of our females.⁵⁹

This quotation is taken from the work of Carl Vogt, the German Darwinian and polygenist,⁶⁰ whose *Lectures on Man* was published in English translation in 1864 by the racist Anthropological Society of London. Darwin was impressed by Vogt's work and proud to number him among his advocates.⁶¹ He cited Vogt's morphological arguments on racial and sexual differences and inequalities on several occasions in *The Descent*. He agreed with Vogt that the mature female, in the formation of her skull, is 'intermediate between the child and the man' and that woman's anatomy generally, was more child-like or 'primitive' than man's.⁶² It was an extension of Vogt's woman-as-child-as-primitive argument that provided the sole scientific underpinning of Darwin's conclusions on the futility of higher education for women. In a footnote to his assertion that the present sexual inequalities could only be enhanced rather than diminished by social progress, Darwin wrote:

An observation by Vogt bears on this subject: he says, 'It is a remarkable circumstance, that the difference between the sexes, as regards the cranial cavity, increases with the development of the race, so that the male European excels much more the female, than the negro the negress'.⁶³

Darwin cited further evidence from measurements of negro and German skulls in support of this contention, but scrupulously added Vogt's qualification that more observations were requisite before it could be accepted as generally true. Nevertheless, Vogt had been as ready as Darwin to found contemporary sexual inequalities on this admittedly inadequate

evidence, and to proscribe any possibility of future sexual equality. Immediately after the above statement cited by Darwin, Vogt had written in his *Lectures on Man*:

It has long been observed that, among peoples progressing in civilization, the men are in advance of the women; whilst amongst those which are retrograding, the contrary is the case. Just as, in respect of morals, woman is the conservator of old customs and usages, of traditions, legends, and religion; so in the material world she preserves primitive forms, which but slowly yield to the influences of civilization. We are justified in saying, that it is easier to overthrow a government by revolution, than alter the arrangements in the kitchen, though their absurdity be abundantly proved. In the same manner woman preserves, in the formation of the head, the earliest stage from which the race or tribe has been developed, or into which it has relapsed. Hence, then, is partly explained the fact, that the inequality of the sexes increases with the progress of civilization.⁶⁴

There can be little doubt that Darwin shared Vogt's conclusion that sexual inequality was the hallmark of an advanced society, and his previous relegation of certain of woman's mental traits to a 'past and lower state of civilization' may also be attributed to this source.

In all, the evidence Darwin marshalled in support of his argument for the innate and continuing inferiority of women through the combined action of natural and sexual selection was scanty and primarily socially derived. The familiar analogy with the animals was conspicuously lacking (where were those examples of greater male intelligence among the higher *Quadrumania*?) and such morphological evidence as could be cited was as yet unsubstantiated (and never to be).⁶⁵ The whole was a triumph of ingenuity in response to theoretical necessity in the face of a dearth of hard evidence, fed by Victorian assumptions of the inevitability and rightness of the sexual division of labour: of woman's rôle as domestic moral preceptor and nurturer and man's rôle as free-ranging aggressive provider and jealous patriarch. Consistent with this, Darwin went to some lengths in *The Descent* to defend what he called the 'natural and widely prevalent feeling of jealousy, and the desire of each male to possess a female for himself'.⁶⁶ In the process he attacked the contemporary anthropological notion of primitive promiscuity and the even more unnatural 'perversion' of polyandry, even though he admitted anthropological evidence of both practices among existing savages. Here he swept aside anthropology and reverted to the animal analogy:

At a very early period, before man attained to his present rank in the scale, many of his conditions would be different from what now attains amongst savages. Judging from the analogy of the lower animals he would then either live with a single female, or be a polygamist. The most powerful and able males would succeed best in obtaining attractive females.⁶⁷

As the quotation indicates, Darwin was not so much promoting patriarchy as defending sexual selection which he could only envisage as operative in some system of male dominance where males held the power of selection and females were valued for their charms.

If Darwin was, in fact, 'in the grip of the system he had constructed',⁶⁸ the relevancy of *The Descent* to predominant Victorian social and political concerns is none-the-less real and must be faced. It is not necessary to assume that Darwin's reconstruction of human evolution was primarily a political ploy, in order to argue that Darwin was deeply influenced by certain social and political assumptions which coloured his ideas about nature and society and directed his attention to certain contentious areas. The derivative character of *The Descent* and Darwin's practice of sorting and sifting the information he collected into support for or opposition to his theory has been asserted by a number of scholars,⁶⁹ and I shall return to this. For my immediate purposes, it is essential to see Darwin's work as part of a more general tendency of nineteenth-century thought to treat human mental and social development more scientifically or naturalistically. In this light, what might seem to be mere appropriation on Darwin's part, may be more correctly considered as reciprocal borrowings from a related trend. Thus Vogt's recapitulatory argument for woman's inferiority can be found in embryo, so to speak, in Darwin's Notebook entry of 9 September 1838:

It is worthy of observation that in insects where one of the sexes is little developed, it is always female which approaches in character to the larva, or less developed state. –

The female & young of all birds resemble each other in plumage. – (That is where the female differs from the male?) children & women – 'women recognized inferior intellectually'.⁷⁰

It is clear from this entry that Darwin had already arrived at the woman-as-child-as-primitive equation, and that in considering human sexual differences he assumed intellectual as well as physical juvenility, hence, inferiority in women. Vogt's basic premise was not new to Darwin, but Vogt had given it a limited empirical basis and an overt social content which Darwin could hook on to the contemporary controversy on higher education for women. When he linked it with the concepts of sexual and natural selection (themselves heavily freighted with social and cultural values) he could prescribe as well as interpret and justify the existing social inequality of the sexes on this 'naturalistic' basis.

Another Notebook entry made a few days after the above, will serve to

illustrate Darwin's theoretically directed practice of arguing analogically from humans to animals:

September 13th. The passion of the doe to the victorious stag, who rubs the skin of[f] horns to fight, is analogous to the love of women (as Mitchell remarks seen in savages) to brave men.⁷¹

Such analogy, as we have seen, was necessary to Darwin's argument that the higher human faculties had evolved from instinctive animal behaviour. He instituted and defended the practice in the Notebooks: 'Arguing from man to animals is philosophical'.⁷² Although he was aware of some of the pitfalls that might attend such subjective description of behaviour ('I must be very cautious'),⁷³ it led directly to some of the more absurd aspects of *The Descent*, such as where Darwin pictured animal sexual behaviour in terms consistent with Victorian sexual morality – where female animals were depicted as coyly Victorian, with as little inclination for sexual encounters as their human counterparts were generally considered to have:

The female, on the other hand, with the rarest exceptions, is less eager than the male. As the illustrious Hunter long ago observed, she generally 'requires to be courted'; she is coy, and may often be seen endeavouring for a long time to escape from the male. Every observer of the habits of animals will be able to call to mind instances of this kind. It is shown by various facts, given hereafter, and by the result fairly attributable to sexual selection, that the female, though comparatively passive, generally exerts some choice and accepts one male in preference to others. Or she may accept, as appearances would sometimes lead us to believe, not the male which is the most attractive to her, but the one which is the least distasteful.⁷⁴

It is such value-laden description that prompted Ruth Hubbard to comment:

Make no mistake, wherever you look among animals, eagerly promiscuous males are pursuing females, who peer from behind languidly drooping eyelids to discern the strongest and handsomest. Does it not sound like the wishfulfillment dream of a proper Victorian gentleman?⁷⁵

When such anthropomorphic description was analogically reapplied to human behaviour and social institutions, it inevitably provided naturalistic corroboration of Victorian values.

Further, Darwin's androcentric description of animal courtship practices, where the initiation of all activity was assigned to the male and females (although possessed of some rudimentary aesthetic sense which they exercised in the selection of male charms) remained passive 'spectators' of male combat and display, paved the way for Darwin's analogical rôle reversal from animal female to human male aesthetic selection.

In *The Descent* the human male became more the analogue of the animal breeder, who exercises his caprice in varying the appearance of the breed:

Each breeder has impressed...the character of his own mind – his own taste and judgment – on his animals. What reason, then, can be assigned why similar results should not follow from the long-continued selection of the most admired women by those men of each tribe who were able to rear the greatest number of children?⁷⁶

As the breeder selects and shapes his domestic productions, so man has moulded woman to his fancy. In illustration of this, Darwin credulously offered the unforgettable picture of the Hottentots (courtesy of Burton) who 'are said to choose their wives by ranging them in a line, and by picking her out who projects farthest *a tergo*. Nothing can be more hateful to a negro than the opposite form'.⁷⁷

In the earlier work of James Cowles Prichard (1813) there is historical precedent for the agency of male aesthetic preference in the shaping of human variety. Prichard also argued analogically from artificial selection and it is possible that Darwin was familiar with Prichard's argument.⁷⁸ However there is no reason to suppose that Darwin could not have arrived at this conception of human variation independently of Prichard.⁷⁹ Darwin's dependency on the analogy of artificial selection to illustrate, explain and endorse the action of natural selection is too well known to require elaboration here.⁸⁰ It was inevitable that he would see in the notion of aesthetic choice an even closer analogy with artificial selection. Darwin regarded humans as pre-eminently a domesticated species, and was fond of comparing civilization to the process of domestication.⁸¹ This was consistent with his insistence on the biological basis of mental and moral qualities. The domestication of animals is brought about not through training, but by a process of selection and breeding for the required traits. In his correspondence with Wallace on sexual selection, Darwin wrote: 'I lay great stress on what I know takes place under domestication'.⁸² So I agree with Ghiselin that 'the theoretical elaboration and verification of sexual selection drew strongly upon the study of artificial selection and embryology'.⁸³ But I would go further than Ghiselin and argue that in the case of human selection, Darwin identified the human male with the breeder – that he put into men's hands the modifying and shaping power of the breeder, and that he did so for the purely cultural reason that it was inconceivable to this proper Victorian that human evolution could have been modified and shaped by female caprice or by female sexuality and passion. Where Ghiselin sees only theoretical consistency in Darwin's overall concept of sexual selection and defends Darwin from the charge of

anthropomorphism,⁸⁴ I concede the theoretical constraints, but argue that the concept of sexual selection and Darwin's application of it to human evolution is pervaded by Victorian sexist ideology. Where Ghiselin asserts that *The Descent* 'owes its success to the power of abstract reasoning that gave rise to it',⁸⁵ I would argue that *The Descent* owed its success primarily to the fact that it had social and political sanction.

Clearly *The Descent* did much more than proffer a naturalistic or scientific explanation of human evolution as an intellectual *tour de force*. It proffered social interpretation, justification and prescription. The congruence of *The Descent* with dominant Victorian social and political assumptions arose partly from Darwin's persistent practice of arguing analogically from humans to animals which led to anthropomorphism and ultimately to circularity when such arguments were reapplied to human behaviour and social arrangements; partly from Darwin's need to seek out and consolidate alliances with a related intellectual tradition that had a more explicit social and political content as in the writings of Vogt and Spencer. Darwin borrowed widely from this tradition for *The Descent*, reinforced it, and thereby strengthened his own values which he had held from his earliest Notebook jottings.

I shall now turn to the consideration of how Darwin, as an individual, came to hold his beliefs on feminine abilities and differences and how these matched up with and fed into the general Victorian image of the female rôle. In the absence of any other historical evidence, and for the reasons outlined in the introduction, it is necessary to reconstruct, as far as possible, Darwin's relations with the woman with whom he lived on close and harmonious terms for forty-three years – his wife Emma.

II. EMMA

The most favourable case which a man can generally have for studying the character of a woman, is that of his own wife: for the opportunities are greater, and the cases of complete sympathy not so unspeakably rare. And in fact, this is the source from which any knowledge worth having on the subject has, I believe, generally come. But most men have not had the opportunity of studying in this way more than a single case: accordingly one can, to an almost laughable degree, infer what a man's wife is like, from his opinions about women in general – *The Subjection of Women*⁸⁶

Having duly weighed the pros and cons in favour of marriage, Charles Darwin soon found his 'nice soft wife on a sofa' in his cousin Emma Wedgwood, although throughout their life together it was the semi-invalid Charles who occupied the sofa, not Emma. Emma hardly had the chance. As their daughter Henrietta recorded:

My mother had ten children and suffered much from ill-health and discomforts during those years. Many of her children were delicate and difficult to rear, and three died. My father was often seriously ill and always suffering, so that her life was full of care, anxiety, and hard work. But she was supported by her perfect union with him, and by the sense that she made every minute of every weary hour more bearable to him.⁸⁷

Even against the 'little woman behind the great man' stereotype, Emma stands out in her total submergence of self in the great man's well-being and his projects. Ever solicitous of Darwin and his numerous ailments through his forty years of invalid existence, utterly devoted to his interests (although she in no way shared them), she created and preserved the orderly, quiet, entirely domestic environment Darwin desperately craved for his work and health. Her days were planned out to suit him and the elaborate routine he devised to achieve the maximum of work with the least possible distress to his delicate constitution. Emma was ready to read aloud to him during his periods of rest on the sofa, to write his letters at his dictation, go for walks with him, and be constantly at hand to alleviate his daily discomforts. She helped proof *The Origin* and dutifully watched over his experiments. But she had little interest in science, only in the scientist. She was deeply religious, and many of his opinions were painful to her, yet it was Emma whom Darwin entrusted to carry out the publication of the preliminary version of his 'Species Theory' in the event of his death. It proved unnecessary (he lived for another thirty-eight years), but there is no doubt that Emma would have loyally carried out his wishes.⁸⁸

With the possible exception of her religious beliefs, there is no evidence whatever that Darwin was not more than content with Emma's circumscribed rôle of perfect nurse and loyal helpmate. Before their marriage, he defined her proper sphere: Emma was to 'humanize' him, to teach him that there was greater happiness in life than 'building theories and accumulating facts in silence and solitude'.⁸⁹ He had not expected intellectual companionship in marriage, and in fact discouraged it. While she was still his fiancée, he dissuaded Emma from reading Lyell's *Elements of Geology* which she had embarked upon under the impression that she should 'get up a little knowledge' for him. In Darwin's experience, science was an

exclusively male preserve, which women entered, if they entered at all, only as spectators – at the most as fashionable dabblers, not to be taken seriously. He did not expect or want women to converse intelligently about science, but rather to be tolerant of masculine preoccupation with it, like ‘poor Mrs Lyell’ who sat by, a ‘monument of patience’, while Darwin and Lyell talked ‘unsophisticated geology’ for half an hour.⁹⁰

The one occasion we know of when Darwin set aside these conventional views of his ‘nice soft wife’ was when he decided to disregard his father’s advice and discuss his loss of religious faith with Emma soon after they married. The result was not happy. Emma was evidently seriously distressed by Darwin’s religious doubts, so much so that she set down her concern in writing – a carefully phrased letter which Darwin preserved. She suggested that he had been unduly influenced by his brother Erasmus, that the scientific habit of ‘believing nothing until it is proved’ ought not be extended to matters of faith, and expressed her belief in the value of prayer. The letter is at once an expression of diffidence at opposing her ‘feeling’ to his ‘reasoning’ and of conviction of her wifely duty to do so. She loved him and she feared for his immortal soul:

I should say also there is a danger in giving up revelation which does not exist on the other side, that is the fear of ingratitude in casting off what has been done for your benefit as well as for that of all the world and which ought to make you still more careful, perhaps even fearful that you should not have taken all the pains you could to judge truly . . . I should be most unhappy if I thought we did not belong to each other for ever.

Darwin’s response to this was rather poignant:

When I am dead, know that many times I have kissed and cried over this. C.D.⁹¹

We have no definite information, but it would seem that husband and wife were mutually concerned not to let their religious differences mar their domestic relations, and that they thenceforth avoided the topic, confining themselves to their respective spheres. Darwin continued with his science and his scepticism and Emma busied herself with his person and not with his distressing ideas and work, which she nevertheless loyally supported and promoted by her domestic arrangements and by her acquiescence in relinquishing the London society and theatre parties she had enjoyed so much. Darwin’s increasing ill-health and absorption in his work dictated the latter necessity, and Emma’s life narrowed to one of ‘watching and nursing . . . cut off from the world’ (Henrietta’s description).⁹² She had her reward in his gratitude expressed in the fulsome tributes of Darwin’s

Autobiography. She was his 'greatest blessing', his 'wise adviser and cheerful comforter throughout life', so infinitely his superior in 'every single moral quality' (my emphasis).⁹³

This stereotype of Victorian feminine servitude, domesticity and piety, is given a bit of a jolt by Henrietta's ascription of 'remarkable independence'⁹⁴ to her mother's character and way of thinking. True, there are glimpses of another Emma behind the facade of the perfect nurse. She was, for her time, a reasonably cultivated woman. She knew French and Italian, and her German was considerably better than Darwin's. Characteristically, she helped him with his translations. Her letters show her to have had humour and a wide general knowledge. If Darwin's taste dictated the choice of the popular, sentimental novels she read aloud to him (typically, he preferred happy endings and a lovable and pretty heroine), her own choice was wider ranging. In spite of her professed indifference to Darwin's work, she seems to have understood it and its implications pretty well. And how much of this indifference was really aversion on religious grounds? Again, for all her piety, she could, on occasion, dissent from conventional religious opinion, as when she defended the morality and ethics of 'this new breed of agnostics'. After Darwin's death, she took a great interest (although a decidedly conservative one) in politics, avidly following the election results and parliamentary debates. She knew she ought to care about the higher education of women, although she did not.⁹⁵ Nevertheless, stereotype and historical person coincide fairly well. Whatever independence of mind Emma exhibited, it hardly appears remarkable even in Victorian terms, and it certainly did not extend to any notion of female equality. Her background, training and circumstances concurred to that end. Henrietta's account of her mother's early life is an unwitting testament to the powerful patriarchal conditioning of Victorian women.

Emma's maternal grandfather had been in the habit of thumping his fist on the table and ordering his daughters to talk when he wished to be entertained after dinner. His daughters all became good talkers but went in 'nervous dread' of their father who made their homelife utterly constrained and miserable. Not surprisingly, Emma's mother considered men as 'dangerous creatures who must be humoured' and treated her husband accordingly. Emma's father, Josiah Wedgwood, son of the potter industrialist of the same name, also inspired nervous awe in most of his female relations, one of whom described him as 'always right, always just, and always generous'. Charles Darwin's sisters, who had their own household patriarch to placate in Dr Robert Darwin, were astounded at

the ease and familiarity with which Charles treated Uncle Jos, 'as if he was a common mortal'.⁹⁶

The second, third and fourth generation Wedgwoods and Darwins who so often intermarried, may have inherited some unconventional theological and political notions, but they were entirely orthodox in their understanding and expectations of woman's domestic and social rôles. These staunch supporters of negro emancipation would have been confounded by the suggestion that their wives, daughters, sisters, needed emancipating. The elaborate division of labour that underlay the successful pottery enterprise that founded the Wedgwood fortunes extended to the domestic sphere, where the respective rôles of men and women were thoroughly understood and defined. A Wedgwood (Emma's father) required his wife to be

sensible to his pains and his pleasures, participat[e] in his hopes, . . . [strengthen] his good dispositions and gently discourag[e] his harshness and petulance, and more than all . . . become flesh of his flesh and bone of his bone, by bearing him children . . .⁹⁷

Men might indulge in 'philosophy', women were assumed to be bound by religious piety to their rôles of moral preceptors of family life. A husband should guard his religious opinions lest he distress his wife. In all his life, Darwin's father had known only three women sceptics, and of one of these he was not certain.⁹⁸ A high premium was placed on feminine prettiness, vivacity and sweetness; little or none on feminine intellect, education or independence. In choosing his wife from his Wedgwood cousins, Darwin could be as comfortable in his expectations of her assumption of his male supremacy and importance, as he was of her substantial dowry.⁹⁹

Not that Darwin was in any sense a typical Victorian patriarch. The historian, Gertrude Himmelfarb, who is one of Darwin's harshest critics, concedes:

The most cynical reader of biographies would be hard put to it to dispute the genuineness of the love and respect borne him by his family, and his most determined enemies were unable to call into question his gentleness, modesty, and good nature. There may be much in his work and mind to criticise, but little in his character.

Nevertheless, Himmelfarb continues tartly, his character and mind were all of a piece: ' . . . what was admirable in the one was not necessarily so in the other, tenderness of character sometimes showing itself as softness of mind'.¹⁰⁰

It is a curious contradiction, that the man whose writings have been credited with such revolutionary impact, should have clung so tenaciously

to the familiar, cosy and innocuous after his arduous stint on the 'Beagle' – to have made the shawl, sofa and feminine attendant a way of life. There has been a good deal of controversy about the nature of Darwin's ill-health and suggestions range from those of specific aetiology to the frankly Freudian. A more plausible explanation is that Darwin turned himself into an invalid simply to get on with his work.¹⁰¹ This would explain his acquiescence in the excessive care Emma bestowed on him, the advantage he consistently took of his semi-invalidism to avoid the strains of a social life which would have interfered with his work, and the enormous amount of scientific work, both experimental and literary, he managed to accomplish in spite of his chronic ill-health. He did not have to trouble himself about the management of house, garden or livestock. Emma 'shielded him from every avoidable annoyance, and omitted nothing that might save him trouble, or prevent him becoming over-tired . . .'.¹⁰² He was a loving, kindly and indulgent father, but his children 'all knew the sacredness of working time'.¹⁰³ For all his free and easy relations with them, he inculcated the Victorian virtues of respect and obedience: 'Whatever he said was absolute truth and law to us'.¹⁰⁴ The atmosphere of Down House has been so often evoked as affectionate and homely, but there is no question that Darwin's invalid status and work routine were dominant, and that his family patterned their lives around the demands of his twin occupations. Without departure from his consistent 'gentleness, modesty and good nature', he nevertheless achieved what he wanted. His most diffident wishes were as much deferred to as the despotic demands of any fist-thumping, awe-inspiring patriarch, and his love and gratitude endorsed the narrow, entirely domestic lives he tenderly imposed on wife and daughters. The unacknowledged stresses of that cosy environment are suggested by Henrietta's prolonged and mysterious breakdown between the ages of thirteen and eighteen years, when she too assumed the rôle of invalid, a rôle she continued to exploit for much of her life. When Henrietta was eighty-six, she told her niece that she had never made a pot of tea in her life, that she had never been out in the dark alone, that she had never travelled without her maid, and that since the age of thirteen she had had breakfast in bed. It was the opinion of this niece that it was unfortunate that Aunt Etty had had no 'real work' into which she might have channelled her unbounded energy and managerial talents: 'As it was, ill-health became her profession and absorbing interest'.¹⁰⁵

The social nature of the epidemic of female illness among the Victorian middle and upper classes has been explored by a number of scholars who

argue that illness was a socially acceptable retreat for those women unable to come to terms with the contradictions and limitations of their narrow and unproductive lives.¹⁰⁶ Whereas Darwin resorted to illness in order to get on with his work, Henrietta retreated to it because she had no work. Female invalidity conformed with Victorian notions of feminine frailty and dependency and reinforced society's strict and rigid definitions of sex rôles and sexual differences. In Henrietta's case, these differences had marked her out from infancy. From their birth, Darwin observed and compared the development of his sons and daughters. To his fatherly eyes, his infant sons showed an innate aggressive aptitude for throwing things at anyone who annoyed them, while his daughters were more passive and demonstrated their feminine superiority at manual dexterity. It followed from this infantile recapitulation of primitive evolution, that his sons exhibited reason at a much earlier age than his daughters and were more intelligent.¹⁰⁷

In conventional fashion the sons were educated at school and university, while Henrietta and her sisters were taught at home by a series of governesses chosen by Emma who was not overli concerned with their educational qualifications. In later life, Henrietta regretted the poor quality of her education.¹⁰⁸ As might be expected, the daughters were conventionally religious, while the sons tended more towards the scepticism of their father.

It was feminine conventionality which overrode the wishes of the sons when Darwin's *Autobiography* was published with the deletion of his religious opinions. Henrietta went so far as to threaten legal proceedings to stop its publication altogether. She felt that on religious questions it was 'crude and but half thought-out', a strongly-worded criticism she never ventured to make of any other aspect of Darwin's writing.¹⁰⁹ It was Henrietta who proofed *The Descent*, in fact edited it, for Darwin thanked her profusely for her rephrasing of various sections. But she seems to have found nothing to cavil at in the section on woman's intellectual inferiority, which of course gave due recognition to the notion of feminine moral superiority. Similarly, Emma's only concern with *The Descent* was that she would 'dislike it very much as again putting God further off'; otherwise she found it 'very interesting'.¹¹⁰ Apart from matters of syntax it would seem that religion was the one acceptable area in which a Darwin female felt competent to make an intellectual judgment, while asserting her moral authority.

Henrietta married shortly after *The Descent* was published and Darwin

could give her no better advice on that occasion that the following formula, an amusing blend of sentiment and hypochondria:

I have had my day and a happy life, notwithstanding my stomach; and this I owe almost entirely to our dear old mother, who, as you know well, is as good as twice refined gold. Keep her as an example before your eyes, and then Litchfield will in future years worship and not only love you, as I worship our dear old mother.¹¹¹

It never seems to have occurred to Darwin to question the excessive maternal solicitude and protectiveness he evoked from wife and children, who conspired to shield him from his over-sensitive self. He was eternally grateful, he was Emma's slave, he worshipped her, he was a selfish brute, but he could console himself with the reflection that woman was naturally more tender and less selfish than man. Emma was simply exhibiting her innate qualities, as he was. He was very likely referring to his own career when he wrote in *The Descent*:

Man is the rival of other men; he delights in competition, and this leads to ambition which passes too easily into selfishness. These latter qualities seem to be his natural and unfortunate birthright.¹¹²

It was unfortunate, but it was the natural order of things. The thought that he might have attained his own high eminence at the expense of his beloved Emma, would have been too painful to bear. The concept of the innate mental differences between the sexes was as psychologically indispensable as it was theoretically consistent. Emotional comfort could be distilled from theoretical necessity. Not that I am suggesting that this was in any way a conscious process on Darwin's part.

Emma herself once wrote of him: 'He is the most open, transparent man I ever saw, and every word expresses his real thoughts...'.¹¹³ With due allowance for wifely sentiment, all Darwin's writings, published and private, bear this out. They may have been confused, at times inconsistent, certainly in some ways as we have seen they were biassed, but they were remarkably open and unselfconscious. For Darwin, the differences between the sexes were as self-evident as the differences in beaks and plumage between the finches of the Galapagos Islands, and both sets of phenomena were reducible to the same causes. There was, after all, no inconsistency between his personal experience and his theoretical argument. The women he had known most intimately conformed entirely with Victorian conventions of femininity and domesticity. Of his own part in reinforcing those conventions he remained sublimely unaware.

That Darwin never managed to transcend these conventions and take seriously Mill's critique of them, should occasion no surprise. He had not Mill's advantage of a Harriet Taylor. Not that he would have been happy in the company of a liberated, intelligent and strong-minded woman. He had wanted a 'nice soft wife' and in Emma he found one. The domestic relations of the Darwins are best understood as an expression of the class and sexual divisions of Victorian society, and to these I shall now turn. For before all, Darwin was a Victorian, 'a gentlem[a]n and a family m[a]n, of complete financial, political and sexual respectability',¹¹⁴ and while this was of great advantage in the promotion of unorthodox opinion, and Darwin, Huxley and the entire Darwinian party capitalized on it, in return it imposed its own orthodoxy.

III. FEMINISM, DARWINISM AND THE SOCIAL CONTEXT

It is one of the characteristic prejudices of the reaction of the nineteenth century against the eighteenth, to accord to the unreasoning elements of human nature the infallibility which the eighteenth century is supposed to have ascribed to the reasoning elements. For the apotheosis of Reason we have substituted that of Instinct; and we call everything Instinct which we find in ourselves and for which we cannot trace any rational foundation. This idolatry, infinitely more degrading than the other, and the most pernicious of the false worships of the present day, of all of which it is now the main support, will probably hold its ground until it gives way before a sound psychology, laying bare the real root of much that is bowed down to as the intention of Nature and the ordinance of God. – *The Subjection of Women*¹¹⁵

The nineteenth century was a period of extraordinary social and economic transformation and expansion, in which pre-industrial modes of legitimation, religion in particular, were giving way to a secular redefinition of the world. In the process, science increasingly took over from religion the task of defining and upholding the moral and social order. Evolution was central to this transition, and took on a newfound respectability.

The Origin was published, acclaimed and accepted within the body of

scientific knowledge in the mid-Victorian era of capitalist enterprise, when industrial capitalism became a genuine world economy. In the prevailing mood of complacent confidence and general prosperity, the revolutionary notion of evolution no longer seemed to imply social upheaval.¹¹⁶ On the contrary, the secular ideology of progress, assimilated to the capitalist requirements of industrial and economic growth, catch-cry of a rapidly advancing liberal and 'progressive' bourgeoisie, proved amenable to the notion of biological evolution, particularly when it was so congenially expressed in the familiar terminology of classical political economy. Progress could now be scientifically sanctioned, for Darwinism guaranteed it where the utilitarians had only been able to hope that they could engineer it.¹¹⁷ The 'Social Darwinism' forged by Spencer from his earlier social evolutionism and shored up with Darwinian biological concepts (themselves heavily dependent on social theory)¹¹⁸ made unobstructed competition and the resultant 'survival of the fittest' the guarantee of continuous social progress without revolutionary or radical change. It has been pointed out that Spencer's unique appeal lay in 'his ability to support the foundations of the status quo while at the same time introducing to the middle class the revolutionary mechanism of evolutionary law and the discoveries of science'.¹¹⁹ Recent scholarship has emphasized the central rôle played by economic and political factors in the reception of evolutionary theory, and it is clear that it was in its social, rather than its biological form, that 'Darwinism' was most widely known and popularized in the late nineteenth century.¹²⁰ In the process, the traditional radical component of evolutionary thinking was swamped by the rising tide of Social Darwinism, which went on to provide the intellectual underpinnings of imperialism, war, monopoly capitalism, militant eugenics and racism. Darwinism could and can mean many things to many people, but there is little doubt that its dominant nineteenth-century mode was that Social Darwinism that so well served late Victorian imperialist interests.¹²¹

Darwin's own part in this was not insignificant, as has been so often asserted. He did not have to endorse the activities of 'every cheating tradesman'¹²² for his work to have a profound impact on nineteenth-century social and political theory. Darwin's neutrality can hardly be asserted and sustained in the face of his own application of his theory of evolution to the interpretation and justification of existing economic and social relations and his insistence that social progress could only occur through severe and sustained competitive struggle. When he incorporated contemporaneous social thought in support of this belief in *The Descent*, he

opened up his work to its reciprocal appropriation as Social Darwinism.¹²³ Young has argued persuasively for a 'common context' of biological and social thought associated with the themes of struggle and adaptation which was the main interpretative resource for both nineteenth-century evolutionists like Darwin and social theorists like Spencer.¹²⁴ When the problem of human evolution had finally to be faced, Darwin was as dependent upon Spencer and others of the social evolution tradition for the larger social and political generalizations by which to make evolution explicable to his audience, as they were, in a scientifically-minded age, on his biological ratification of their social evolution. From the alliance of Darwinian biology and Spencerian social evolutionism which *The Descent* consolidated, came Social Darwinism.

It was an alliance that made for success. As Darwin reported to Henrietta:

Murray reprinted 2000 [of *The Descent of Man*] making the edition 4500, and I shall receive £1470 for it. That is a fine big sum... Altogether the book, I think, as yet, has been very successful, and I have been hardly at all abused.¹²⁵

The atmosphere of general assent and goodwill that greeted *The Descent* is a notable indication of the change in opinion that had taken place since the publication of *The Origin*.¹²⁶ It is all the more notable in view of the fact that *The Descent* was published on the eve of the suppression of the Paris Commune. When *The Times* stirred to fever pitch by the events in Paris, invoked The Commune to attack the dangerous and immoral 'disintegrating speculations' of *The Descent*, it found itself out of step with the more general anxiety to dissociate Darwinism from political revolution and absorb it into the traditional sphere of natural theology and conservative politics and morality.¹²⁷

From the 1870s on, it became possible for those who found it expedient, to look to evolution rather than religion for the corroboration of their social values. The more theologically minded could make a 'subtle accommodation with the theory... adopting an attendant natural theology which, while it made God remote from nature, made his rule grander', thus securing at a stroke the double ratification of God and science.¹²⁸ It was a double ideological ratification that also appealed strongly to American 'robber barons', reaching its apotheosis in the well-known Sunday School Address by J. D. Rockefeller, where he defended the morality of the monopolistic practices of Standard Oil as 'not an evil

tendency in business' but 'merely the working-out of a law of nature and a law of God'.¹²⁹

Contradictory as it may seem, in certain respects (as a number of scholars have stressed)¹³⁰ Darwinism represents not so much a revolutionary break as an underlying continuity with natural theology, which, by the time *The Origin* burst on the scene, had made its own accommodation with Malthusian social theory and the ideology of progress and was moving cautiously towards a more naturalistic or scientific interpretation of earth's history. As suggested above, Darwinism was simply one aspect of a much broader movement that can be traced back to the end of the eighteenth century, and embraced not only directly evolutionary writings, such as those of Erasmus Darwin and Robert Chambers, but the population theory of Malthus, utilitarianism and laissez-faire doctrine, feminism and natural theology. All aimed at reinterpreting more naturalistically, traditional views of nature and society, while assuming a basically theistic view of both. Where they differed was in where to draw the line, the evolutionists insisting that *all* of nature including humanity and mind was under the domain of natural law and therefore a legitimate object of scientific inquiry, the natural theologians disputing the inclusion of humanity, or at least mind, in the course of material nature. Viewed in this light, the Darwinian controversy becomes a 'demarcation dispute within natural theology',¹³¹ and the ability of theology ultimately to accommodate Darwinism, when faced with the necessity for doing so, becomes explicable.

This interpretation also helps us to understand why, having triumphed and made men's and women's minds subject to natural law, many leading Darwinians became so rigidly determinist in their views on human social and economic arrangements. To reiterate, the Darwinian debates were merely the focus of the more general controversy that preoccupied nineteenth-century intellectuals as secular naturalism challenged traditional theological modes of explanation: are human affairs governed by fixed laws or are they the result either of chance or of supernatural interference? To put it another way, if human actions are intelligible, it can only be because they, like the rest of nature, can be subsumed under fixed and immutable laws.¹³² The whole spectrum of nineteenth-century progressive thought (including feminism) was influenced by this naturalistic assumption, which stemmed partly from conscious opposition to conventional wisdom and authority, partly from an ever-increasing confidence in the 'certainties' of science and the universality and in-

evitability of natural law. Harriet Martineau, one of the founders of British sociology and an ardent defender of women's rights, wrote enthusiastically of Comte's *Positive Philosophy*:

We find ourselves suddenly living and moving in the midst of the universe – as a part of it, and not as its aim and object. We find ourselves living, not under capricious and arbitrary conditions, unconnected with the constitution and movements of the whole, but under great, general, invariable laws, which operate on us as part of a whole.¹³³

Thus Darwin, in pushing his case against the divine origin of human mind and conscience, argued for their evolution according to the same processes that had produced all living things. His refusal to concede any but naturalistic explanations of human intelligence and morality, hardened into a biological determinism that rejected all social and cultural causation other than that which could be subsumed under the natural laws of inheritance and thus become innate or fixed.¹³⁴

We can trace this process through Darwin's writings. There is an early Notebook emphasis on the significance of education to a materialist view of morality: 'Believer in these views will pay great attention to Education'.¹³⁵ At this stage, he was even willing to concede that the education of women could play a definite rôle in social evolution, both through women's own intellectual and moral improvement and through their general influence as moral preceptors:

Educate all classes, avoid the contamination of castes, improve the women. (double influence) & mankind must improve.¹³⁶

It is to be noted, however, that he stressed the deleterious effects of miscegenation. By the time of *The Descent*, Darwin's confidence in the improving power of education and other environmental agencies was waning before his increasing emphasis on the biological basis of mental and moral differences, and his insistence on the necessity of continuous competitive struggle for human mental and moral improvement. In *The Descent* he advocated eugenics as a means of social advancement,¹³⁷ and not long before his death he wrote:

I am inclined to agree with Francis Galton in believing that education and environment produce only a small effect on the mind of anyone, and that most of our qualities are innate.¹³⁸

The contradiction was that such rigid exclusion of environmental explanation led full circle back to the Wise Designer and Law Giver who ultimately sanctioned the social order which men and women could not

change by their own efforts. Mill summed it all up in the extract from the powerful opening chapter of *The Subjection of Women* that heads this section. It was the 'intention of Nature and the ordinance of God' that men and women should occupy their socially and culturally sanctioned positions, and it made little practical difference whether one attributed the cause primarily to the designing hand of providence or evolution by natural and sexual selection.

From the 1870s on, the dominant Darwinian tradition was characterized by a moralizing naturalism,¹³⁹ to which *The Descent* gave a powerful boost. Huxley, Romanes, Galton, Lubbock and Spencer all produced popular writings of this kind. Their language sometimes assumed an inspired evangelical tone. Galton wanted to 'elicit the religious significance of the doctrine of evolution'. Huxley, the self-designated agnostic, saw in anthropology a 'religion of man', whom he pictured as potentially raised upon his accumulated and organized collective experience as 'on a mountain top, far above the level of his humble fellows, and transfigured from his grosser nature by reflecting, here and there, a ray from the infinite source of truth'.¹⁴⁰ For many Darwinians, playing churchman merely required translation of ecclesiastical into scientific language. What had been sin, became biologically and therefore socially injurious.¹⁴¹ While it was the intent of many leading Darwinians like Spencer and Vogt to bring political legislation and social procedure into harmony with human biology, not antiquated notions of natural reason or Christian morality, it was surprising how often the new 'truths' of science affirmed the traditionally-sanctioned stereotypes of men and women.

Huxley, distinguished for his celebrated stand against the deduction of ethical 'oughts' from biological 'ises' that characterized Social Darwinism, wrote sweepingly that women were 'by nature, more excitable than men – prone to be swept by tides of emotion . . . naturally timid, inclined to dependence, born conservative . . .'.¹⁴² Yet his liberal principles of democracy and individualism could not deny a better education to women, for all their natural inferiority. Let us have 'sweet girl graduates' by all means: 'They will be none the less sweet for a little wisdom; and the "golden hair" will not curl less gracefully outside the head by reason of there being brains within'. Let women become merchants, barristers, politicians, Huxley could reassuringly assert that it would make no difference to the status quo:

Nature's old salique law will not be repealed, and no change of dynasty will be effected. The big chests, the massive brains, the vigorous muscles and stout frames of the best men will carry

the day, whenever it is worth their while to contest the prizes of life with the best women... The most Darwinian of theorists will not venture to propound the doctrine, that the physical disabilities under which women have hitherto laboured in the struggle for existence with men are likely to be removed by even the most skilfully conducted process of educational selection.¹⁴³

Huxley's liberal 'oughts' could not help but come into conflict with what was commanded by biological 'ises'. Nevertheless, justice must prevail, and law and custom should not add to the biological burdens that weigh woman down in the 'race of life':

The duty of man is to see that not a grain is piled upon that load beyond what Nature imposes; that injustice is not added to inequality.¹⁴³

Huxley's prediction was correct. Those Darwinian theorists (and they were many, including Darwin) who pronounced upon the 'woman question', raised insuperable evolutionary barriers against feminine intellectual and social equality. Where they did not argue directly against the extension of the franchise and higher education to women on biological grounds, as did Spencer and Cope, they followed Huxley's liberal line of conceding to women their right to the vote and education, but imposing strict evolutionary limitations on the outcome, as did Romanes or Geddes and Thomson.¹⁴⁴ In order to obliterate the innate intellectual and emotional differences between men and women it would be necessary to have all evolution over again on a different basis, a patent absurdity:

What was decided among the prehistoric Protozoa cannot be annulled by Act of Parliament.¹⁴⁵

Huxley's 'higher moral tone' and the biologically-based moral guidance offered by other Darwinians were factors in the struggle they were waging to establish science as a profession worthy of middle-class status and rewards,¹⁴⁶ and fed into the current economic and political climate. By the 1870s, the cold winds of change were beginning to blow about the ears of the British middle-classes, as the limits of the steam-based technology of the first Industrial Revolution became visible, and the 'Great Depression' of 1873–1896 undermined the foundations of mid-nineteenth-century liberalism. After its glorious advances of the '50s and '60s, the economy stagnated, and Britain's industrial and economic global dominance was increasingly challenged by Germany and the U.S.A. When this competition became acute, the only major escape left for British capital was the traditional one of the economic (and increasingly the political) conquest of

hitherto unexploited areas of the world – that is, imperialism – a route which was also quickly adopted by the competing powers. This period was also characterized by urban and industrial unrest, and saw the emergence of mass socialist working-class politics all over Europe.

With the end of the age of unquestioned expansion, the growing doubts about the economic prospects of Britain, and the abiding fear of working class insurrection, the optimistic and confident liberalism of the boom period hardened into an entrenched conservatism. The bourgeois social order of the 1870s was more than ever anxious to consolidate and justify its class and racial superiority and to preserve that basic bourgeois institution, the family – the cornerstone of the bourgeois social order:

The 'family' was not merely the basic social unit of bourgeois society but its basic unit of property and business enterprise, linked with other such units through a system of exchange of women-plus-property (the 'marriage portion')... Anything which weakened the family unit was impermissible...¹⁴⁷

By the 1870s, feminism was beginning to be perceived as a direct threat to the bourgeois family. Nineteenth-century feminism, from Mary Wollstonecraft on, was thoroughly bourgeois in its derivation and aspirations. Its demands for women's suffrage, higher education and entrance to middle-class professions and occupations grew out of that progressive middle-class liberalism for which John Stuart Mill was the leading spokesman. By 1870, not only had Mill's powerful voice been raised in the service of feminism, but women were already attending courses at London and Cambridge (although not as official members of the universities). A few had even managed with great difficulty to gain entrance to medicine and qualify as doctors, while many others were being prepared to compete with boys for the university lower examinations. In 1870, Oxford University decided to open its lower examinations to women also. It seemed only a matter of time before middle-class women not only gained the franchise, but would be able to take out degrees and compete professionally with men, thus acquiring not only intellectual but economic and political independence of the family.¹⁴⁸ Moreover the possibility of family limitation was discreetly beginning to be raised by some feminists – a prospect that struck at the heart of a growing middle-class concern with its reproductive potential versus that of the teeming, irresponsible and potentially insurrectionary lower orders. Inevitably, in the context of a general hardening of attitudes, the increasing intensity and urgency of the demands of feminism fostered a strong reaction against the gains it had made during the confident and prosperous '50s and '60s.

The traditional sexual division of labour which had been characteristic of the pre-industrial and pre-capitalist period, where women had a clearly defined domestic rôle, was accentuated by the new organization of labour demanded by industrial capitalism. This was particularly so for bourgeois women:

For them the division between public life and the private world of the home was absolute, and most became mere symbols by which their husband's financial and social status was evaluated. They were embodiments of conspicuous consumption and remained in their homes to provide their husbands and children with the tenderness, sensitivity and devotion to the arts which was so conspicuously lacking in the factories and mines of Victorian industry... Women worked inside the home and men outside it, and this strict differentiation between the spheres of men and women lay at the heart of Victorian society.¹⁴⁹

It was woman's responsibility to guard the values inherent in the 'family' and the 'home', where her maternal virtues of love, patience and compassion were to temper the savagery of capitalist competition. The feminists' demand for their liberal 'rights' was thoroughly at odds with this renewed emphasis on the sexual division of labour. As in other areas of social concern, during the 1870s science was increasingly invoked to reinforce the traditional religion-sanctioned belief in the essential domesticity of women. With the timely appearance of *The Descent* at the beginning of the decade, Darwin's growing authority and prestige were pitted against the claims by women for intellectual and social equality. This was carried out primarily through the medium of the 'new' anthropology of the '70s, which was also the purveyor of the scientific racism that dominated late-Victorian science and social theory:

There was scarcely an anthropologist who did not take up the moral problem of the evolution of the family and who did not on that basis pronounce upon the emancipation of women.¹⁵⁰

The massive upsurge of anthropological and medical writings endorsing traditional conceptions of woman and her rôle that began around the 1870s has now been thoroughly documented and explored. The bias at the root of this 'scientific' refutation of the claims of feminism has been exposed, and its key social and political rôle in the anti-feminist backlash of the late-Victorian period demonstrated.¹⁵¹ The profound dislocation of late nineteenth-century feminism in the face of this scientific onslaught has been less thoroughly explored and understood. However, in the light of the above analysis, Flavia Alaya's suggestion of a crisis of feminist ideology is

persuasive. Alaya argues that the 'impact of nineteenth-century science... gave such vigorous and persuasive reinforcement to the traditional dogmatic view of sexual character that it not only strengthened the opposition to feminism but disengaged the ideals of feminists themselves from their philosophic roots [of Enlightenment egalitarianism]'.¹⁵² Nineteenth-century feminists became entrapped within the same framework of biological determinism as Darwin. The earlier alliance the feminists had forged with science in the opposition of naturalistic interpretations of human nature and society to conventional wisdom and authority, ultimately betrayed them when science, particularly Darwinism, gave a naturalistic, scientific basis to the class and sexual divisions of Victorian society. The only recourse for feminism to this concerted scientific drawing of naturalistic limits to its claims, was to assert that woman was 'different but equal': to claim for woman a biologically based 'complementary genius' to man's – a 'genius' which was rooted in her innate maternal and womanly qualities.

Thus Antoinette Brown Blackwell, the American feminist and evolutionist, in her critique of Darwin's evolutionary argument for woman's physical and intellectual inferiority, offered an evolutionary argument for the equality of men and women. She did not dispute Darwin's view that the mental differences between men and women were biologically based and the product of evolution; rather she disputed whether woman's innate mental differences could properly be called inferior to man's.¹⁵³ She balanced man's greater strength, reasoning powers and sexual love against woman's greater endurance, insightfulness and parental love, and concluded with a final evolutionary endorsement of Victorian values:

If Evolution, as applied to sex, teaches any one lesson plainer than another, it is the lesson that the monogamic marriage is the basis of all progress. Nature, who everywhere holds her balances with even justice, asks only that every husband and wife shall co-operate to develop her most diligently-selected characters... No theory of unfitness, no form of conventionality, can have the right to suppress any excellence which Nature has seen fit to evolve. Men and women, in search of the same ends, must co-operate in as many heterogeneous pursuits as the present development of the race enables them both to recognise and appreciate.¹⁵⁴

Such argumentation could only reinforce traditional stereotypes and cater to the drawing of biological limits to human potentiality.¹⁵⁵

The refusal by Harriet Taylor and Mill to ground human nature in Nature stands out against this overwhelming nineteenth-century trend, but it is to be noted that Mill himself was not immune from contemporary ideology. He too put his faith in science, in a 'sound psychology' which

would lay bare the 'real root of much that is bowed down to as the intention of Nature and the ordinance of God'.

IV. CONCLUSION

I sometimes marvel how truth progresses, so difficult is it for one man to convince another, unless his mind is vacant. DARWIN to WALLACE on *Sexual Selection*, 1868.¹⁵⁶

Darwin's consideration of human sexual differences in *The Descent* was not motivated by the contemporary wave of anti-feminism (as can be said of most late-Victorian biologists who dealt so exhaustively with the attributes of women), but was central to his naturalistic explanation of human evolution. It was his theoretically directed contention that human mental and moral characteristics had arisen by natural evolutionary processes which predisposed him to ground these characteristics in nature rather than nurture – to insist on the biological basis of mental and moral differences as the raw material on which natural and sexual selection might operate. This brought him into opposition with Mill and others who argued for an environmental or cultural explanation of such differences, and into line with the biological determinism of Galton, Vogt, Spencer and others, whose related but more explicit social and political conceptions he borrowed and built into *The Descent*. In return he proffered additional support and the prestige of his name which entered into social theory as 'Social Darwinism' and was widely used to endorse late-Victorian assumptions of white middle-class male supremacy. In this fashion, Darwin endorsed the anti-feminist arguments of those 'Darwinians' like Huxley, Spencer, Romanes, Geddes and Thomson, who drew biological limitations to woman's political and social potentiality. His own foray into social justification and prescription in *The Descent* was a specific contribution by Darwin to the scientific anti-feminism that characterized this period.

Further, through his concept of sexual selection, Darwin promoted an androcentric account of human evolution which rationalized Victorian conceptions of male dominance and importance and confirmed Victorian sexual stereotypes. An examination of his early Notebook entries demonstrates that Darwin consistently held to these values and by a process of circularity fed them into his conceptions of human biological and social evolution.

Darwin's feminist critics are therefore correct in asserting the bias at the root of Darwin's characterization of women as innately domestic and intellectually inferior to men, and in pointing to the cultural and social values implicit in his concept of sexual selection. They are also correct in asserting the political effects of Darwin's argument for woman's continuing inferiority in the contemporary struggle by feminists for higher education, and the general political rôle of Darwinism in scientifically endorsing anti-feminism through late nineteenth-century biology and anthropology.

However, to do Darwin historical justice, it must be acknowledged that Darwin's personal experience did not lead him to question Victorian sexual stereotypes and the sexual division of labour, and his bourgeois class position reinforced them. Nor was he primarily motivated by anti-feminism, but by the defence of his theory of evolution. Apart from the social and political constraints within which Darwin operated, there were powerful intellectual ones which led not only Darwin but many feminists into biological determinism in their joint effort to replace traditional theological modes of explanation with scientific ones.

Nor did Darwin engage actively in sexual discrimination as did Huxley, when this long-time 'supporter' of higher education for women fought hard to exclude them from ordinary meetings of the Geological and Ethnological Societies, on the grounds that their 'amateur' presence would jeopardize the professional status of those institutions.¹⁵⁷ True, it would have been quite out of character for Darwin to engage in political struggle, and with his handsome income from his solidly invested inherited capital,¹⁵⁸ he could remain comfortably outside the struggle for scientific professionalization and keep his liberal principles intact. He wrote approvingly of the 'triumph of the Ladies at Cambridge'¹⁵⁹ when women were finally accorded the right to present themselves for the 'Little-Go' and Tripos Examinations in 1881.

To suggest, therefore, that Darwin's theory of sexual selection was primarily a political ploy,¹⁶⁰ is simply not correct. Moreover, in spite of its potential for exploitation for anti-feminist purposes, it was very little called upon by those Darwinians who pronounced upon woman's abilities and potential. Only Romanes, Darwin's direct intellectual heir, took it up and applied it to the 'woman question' where he used it to support the notion of woman's complementary genius.¹⁶¹ Geddes and Thomson, in their influential and widely read work *The Evolution of Sex*, took pains to separate themselves from Darwin on the influence of sexual selection upon secondary sexual characteristics.¹⁶² Spencer, who wrote most

voluminously upon woman's biological limitations, made very little use of sexual selection. With typical tenacity he shunted along his own intellectual railway tracks of 'survival of the fittest' and Neo-Lamarckian and recapitulatory explanation of women's evolutionary inferiority.¹⁶³ Most Darwinians seem to have concurred with Wallace who wrote to Darwin on reading *The Descent*:

There are...difficulties in the very wide application you give to sexual selection which at present stagger me...¹⁶⁴

With sexual selection, Darwin had tried to explain too many aspects of evolution which his fellow Darwinians could explain as well as or better through natural selection aided by use-inheritance. Ironically, it was Wallace's views on the primacy of natural selection in sexual dimorphism which were to prevail.¹⁶⁵

The recent attempts by Ghiselin and others¹⁶⁶ to resurrect the theory of sexual selection in all its androcentric glory in the context of the current wave of scientific anti-feminism are therefore doubly ironic, and feminists have a legitimate concern to expose the Victorian roots of the theory. However there are dangers in the wholesale extrapolation of nineteenth-century events to the twentieth, and vice versa. The attribution of Victorian values to twentieth-century biologists is not only historically incorrect but politically meaningless. Twentieth-century biologists are patently *not* conducting their arguments in a late Victorian social, political and intellectual context, but very much in the present, and only a thorough analysis of the present context can clarify the ideological rôle of such biological arguments in our society and lay bare their political ramifications.

Similarly, Darwin cannot be personally judged by twentieth-century yardsticks any more than his work can be assessed by twentieth-century standards and concepts. To label him a sexist may be technically correct and emotionally satisfying to those who oppose all manifestations of sexual discrimination, but is mere rhetoric in the context of a society in which almost everyone was a sexist – who held discriminatory views of woman's nature and social rôle. Those men and women who managed to transcend these socially-induced conventions to live their personal lives and locate their theoretical constructs outside them were rare indeed. This was not achieved by most feminists, nor by that other great theoretician of the Victorian era – Karl Marx.

Rather, from the historical analysis of Darwin's theoretical constructs,

we may gain some valuable insights into the complex on-going interplay between theories of nature and theories of society. They are insights which have eluded Ghiselin who thinks we can still 'reasonably hope to develop ethical standards consistent with biological reality'.¹⁶⁷ They have also eluded those feminist biologists and anthropologists who have opposed the androcentric evolutionary constructions of Ghiselin and his kind with oestrocentric ones¹⁶⁸ infused with feminist values, who scour ethology and anthropology for data to support their views and scurry down the old determinist pathways to Nature's laws.

Even Darwin could occasionally rise above the positivist distinction between facts and values and concede the impossibility of bringing a 'vacant mind' to bear on scientific 'truth'.¹⁶⁹

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NOTES

¹ N. Barlow (ed.), *The Autobiography of Charles Darwin*: with original omissions restored (New York, 1969), pp. 232–233.

² M. Mulkay, *Science and the Sociology of Knowledge* (London, Boston, Sydney, 1979), p. 79. See also B. Barnes and S. Shapin (eds), *Natural Order: Historical Studies of Scientific Culture* (Beverly Hills, London, 1979), pp. 9–13; R. M. Macleod, 'Changing Perspectives in Social History of Science' in *Science, Technology and Society: A Cross-Disciplinary Perspective* eds I. Spiegel-Rosing and D. de Solla Price (Beverly Hills, London, 1977), pp. 189–95; R. Johnston, 'Contextual Knowledge: A Model for the Overthrow of the Internal/External Dichotomy', *Australian and New Zealand Journal of Sociology* XII, 1976, pp. 193–203.

³ M. Mulkay, *op. cit.* (Note 2), p. 62.

⁴ *Ibid.* p. 60.

⁵ For a perceptive analysis of historiographic representations of Darwin's relation to Social Darwinism, see S. Shapin and B. Barnes, 'Darwin and Social Darwinism: Purity and History' in *Natural Order, op. cit.* (Note 2), pp. 125–142.

⁶ R. M. Young, 'Malthus and the Evolutionists: The Common Context of Biological and Social Theory', *Past and Present* XLIII, 1969, pp. 109–145; R. M. Young, 'Darwin's Metaphor: Does Nature Select?', *The Monist* LV, 1971, pp. 442–503; R. M. Young, 'Evolutionary Biology and Ideology – Then and Now', *Science Studies* I, 1971, pp. 177–206; R. M. Young, 'The Historiographic and Ideological Contexts of the Nineteenth Century Debate on Man's Place in Nature' in *Changing Perspectives in the History of Science* eds M. Teich and R. M. Young (London, 1973); G. Gale, 'Darwin and the Concept of Struggle for Existence: A Study in the Extrascientific Origins of Scientific Ideas', *Isis* LXIII, 1972, pp. 321–344.

⁷ 'Contextualism' is the term adopted by Young and Johnston to describe the socio-cultural history of scientific knowledge they advocate, and is to be preferred to that of 'naturalism' adopted by Barnes and Shapin for the same purpose. See Notes 2 and 6.

⁸ M. T. Ghiselin, *The Triumph of the Darwinian Method* (Berkeley, Los Angeles, London, 1972), pp. 214–231.

⁹ See J. C. Greene's critique of *The Triumph of the Darwinian Method* in his 'Reflections on the Progress of Darwin Studies', *Journal of the History of Biology* VIII, 1975, pp. 243–273 and pp. 254–259.

¹⁰ M. T. Ghiselin, *op. cit.* (Note 8).

¹¹ M. T. Ghiselin, *The Economy of Nature and the Evolution of Sex* (Berkeley, Los Angeles, London, 1974).

¹² To wit: 'The evolution of society fits the Darwinian paradigm in its most individualistic form. Nothing in it cries out to be otherwise explained. The economy of nature is competitive from beginning to end. Understand that economy, and how it works, and the underlying reasons for social phenomena are manifest. They are the means by which one organism gains some advantage to the detriment of another. No hint of genuine charity ameliorates our vision of society, once sentimentalism has been laid aside. What passes for cooperation turns out to be a mixture of opportunism and exploitation... 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 expedience will restrain him from brutalising, from maiming, from murdering – his brother, his mate, his parent, or his child. Scratch an 'altruist' and watch a 'hypocrite' bleed'. (M. T. Ghiselin, *op. cit.* (Note 11), p. 247.) For a critique of this work see M. Sahlins, *The Use and Abuse of Biology* (London, 1977), pp. 71–91.

¹³ M. T. Ghiselin, *op. cit.* (Note 11), p. 256.

¹⁴ See R. Hubbard, 'Have Only Men Evolved?', in *Women Look at Biology Looking at Women* ed. R. Hubbard *et al.* (Boston, 1979), pp. 7–35; see also the Introduction, p.xv. Darwin's views on the inferiority of women are also discussed by S. Sleeth Mosedale, 'Science Corrupted: Victorian Biologists Consider "The Woman Question"', *Journal of the History of Biology* XI, 1978, pp. 1–55; and by F. Alaya, 'Victorian Science and the "Genius" of Woman', *Journal of the History of Ideas XXXVIII*, 1977, pp. 261–280. See also J. H. Crooke, 'Darwinism and the Sexual Politics of Primates', *Social Science Information* XII, 1973, pp. 7–28.

¹⁵ R. Hubbard, 'Have Only Men Evolved?', *op. cit.* (Note 14), p. 16.

¹⁶ This seems to be the gist of Hubbard's remarks, *ibid.* p. 26 and Note 30, p. 35.

¹⁷ M. Mulkay, *Science and the Sociology of Knowledge*, *op. cit.* (Note 2), pp. 100–108; A. Sandow, 'Social Factors in the Origin of Darwinism', *Quarterly Review of Biology* XIII, 1938, pp. 315–326. See also R. M. Young, *op. cit.* (Note 6, 1971).

¹⁸ J. S. Mill, 'The Subjection of Women', in *Essays on Sex Equality*, ed. A. S. Rossi (Chicago and London, 1970), p. 150. Rossi asserts the 'joint collaboration' of Taylor and Mill in their essays on sex equality. The *Subjection of Women* was written by Mill after Taylor's death, but was based on their previous intellectual collaboration on the issue (pp. 31–45).

¹⁹ See his comments to de Candolle in 1868, in *The Life and Letters of Charles Darwin*, ed. F. Darwin (London, 1888), Vol. III, p. 100.

²⁰ C. Darwin, 'M and N Notebooks and Old and Useless Notes', published in H. E. Gruber, *Darwin on Man* (London, 1974); 'Darwin's Notebooks on Transmutation of Species' ed. G. de Beer, *Bulletin of the British Museum (Natural History) Historical Series* II (2–6), 1960–61 and III (5), 1967. See also: S. Schweber, 'The Origin of the Origin Revisited', *Journal of the History of Biology* X, 1977, pp. 229–316; E. Manier, *The Young Darwin and His Cultural Circle* (Dordrecht, 1977); S. Herbert, 'The Place of Man in the Development of Darwin's

Theory of Transmutation', Parts I and II, *Journal of the History of Biology* VII, 1974, pp. 217–258; X, 1977, pp. 155–227. An excellent analysis of the relation of *The Descent* to the earlier Notebooks and to contemporaneous social thought is contained in G. Jones, 'The Social History of Darwin's *Descent of Man*', *Economy and Society* VII, 1978, pp. 1–23; see also J. C. Greene, 'Darwin as a Social Evolutionist', *Journal of the History of Biology* X, 1977, pp. 1–27.

I am especially indebted to the work of Randall Albury for his examination of Darwin's views on women and his clarification of Darwin's relationship to the contemporary writings of J. S. Mill in his paper 'The Descent of Man and the Subjection of Women: Science and Ideology in Darwin's Answer to Mill', a version of which was published under the title 'Darwinian Evolution and the Inferiority of Women', *GLP! – A Journal of Sexual Politics* VIII, 1975, pp. 10–19.

²¹ Quoted in G. Himmelfarb, *Darwin and the Darwinian Revolution* (Gloucester, Mass., 1967), p. 259. For Darwin's response to Lyell, see also: F. Darwin (ed.), *op. cit.* (Note 19), Vol. III, pp. 11–13.

²² A. R. Wallace, 'The Origin of Human Races and the Antiquity of Man Deduced from the Theory of Natural Selection', *Anthropological Review* II, 1864, pp. clvii–clxxxvii. For a discussion of Wallace's paper and Darwin's response to it, see J. C. Green, *op. cit.* (Note 20).

²³ F. Darwin (ed.), *op. cit.* (Note 19), Vol. III, pp. 89–91; also *More Letters of Charles Darwin* ed. F. Darwin (New York, 1903), Vol. II, pp. 31–37.

²⁴ A. R. Wallace, 'Sir Charles Lyell on Geological Development and the Origin of Species', *Quarterly Review* CXXVI, 1869, pp. 379–94. For discussion of Wallace's socialism and spiritualism and their effects on his evolutionary arguments, see R. Smith, 'A. R. Wallace: Philosophy of Nature and Man', *British Journal for the History of Science* VI, 1972, pp. 177–199; J. R. Durant, 'Scientific Naturalism and Social Reform in the Thought of Alfred Russel Wallace', *British Journal for the History of Science* XII, 1979, pp. 31–58.

²⁵ F. Darwin (ed.), *op. cit.* (Note 19), Vol. III, p. 116.

²⁶ C. Darwin, *The Origin of Species*, Reprint of First Edition, ed. J. W. Burrow (Harmondsworth, 1968), p. 136.

²⁷ *Ibid.* pp. 137–138.

²⁸ Male-centred or sexist. See R. Hubbard, *op. cit.* (Note 14), p. 16.

²⁹ F. Darwin (ed.), *op. cit.* (Note 19), Vol. III, p. 91; F. Darwin (ed.), *op. cit.* (Note 23), Vol. II, pp. 33–34.

³⁰ F. Darwin (ed.), *op. cit.* (Note 19), Vol. III, p. 95.

³¹ *Ibid.* p. 97. For the Darwin/Wallace correspondence on selection see F. Darwin (ed.), *op. cit.* (Note 19), Vol. III, pp. 89–100, and F. Darwin (ed.), *op. cit.* (Note 23), Vol. II, pp. 55–97.

³² By this stage, for a number of reasons, but primarily because of the lack of a satisfactory theory of heredity, Darwin was allowing an increasingly greater rôle for mechanisms other than natural selection in the evolution of organisms. He employed use-inheritance generously throughout *The Descent* on the basis of his controversial theory of pangenesis which allowed for the inheritance of acquired characteristics. See P. J. Vorzimmer, *Charles Darwin: The Years of Controversy* (Philadelphia, 1970), especially Chs 5 and 6. See also Notes 52, 123 and 134 below. This also possibly explains why Darwin came to rely so heavily on the mechanism of sexual selection in accounting for human evolution.

³³ C. Darwin, *The Descent of Man, and Selection in Relation to Sex*, 2nd ed. (London, 1889), p. 128. All quotations from *The Descent* are taken from this edition. The relevant passages

have been checked against the first edition (2 vols, London, 1871) for variations, and any such variations are indicated in the Notes.

³⁴ *Ibid.* pp. 130–131.

³⁵ *Ibid.* p. 98. The last sentence of this quotation does not appear in the first edition of *The Descent* (*op. cit.* [Note 33], Vol. I, p. 71). Its addition to the second edition (first published in 1874) suggests a hardening of Darwin's opposition to environmental explanations such as those offered by Mill.

³⁶ J. C. Greene, *op. cit.* (Note 20), p. 11.

³⁷ C. Darwin, *op. cit.* (Note 33), p. 618. See also Greene's comments in 'Darwin as a Social Evolutionist', *op. cit.* (Note 20).

³⁸ C. Darwin, *op. cit.* (Note 33), p. 617.

³⁹ M. T. Ghiselin, *op. cit.* (Note 8), p. 214.

⁴⁰ C. Darwin, *op. cit.* (Note 33), p. 604.

⁴¹ *Ibid.* pp. 566–606.

⁴² Darwin to Wallace, 1868, in F. Darwin (ed.), *op. cit.* (Note 23), Vol. II, p. 63. Darwin's practice of arguing by analogy from human to animal behaviour and his resultant anthropomorphism are here beautifully illustrated. The more so, because a year later in another letter to Wallace he reversed the analogy and circled back to human sexual selection: 'It is an awful stretch to believe that a peacock's tail was thus formed; but, believing it, I believe in the same principle somewhat modified applied to man', Darwin to Wallace, 1869, *ibid.* p. 90.

⁴³ *Ibid.* p. 76.

⁴⁴ *Ibid.* See also C. Darwin, *op. cit.* (Note 33), p. 221.

⁴⁵ C. Darwin, *op. cit.* (Note 33), p. 597.

⁴⁶ *Ibid.* p. 563.

⁴⁷ *Ibid.* pp. 561–562.

⁴⁸ Mill wrote: 'I consider it presumption in any one to pretend to decide what women are or are not, can or cannot be, by natural constitution. They have always hitherto been kept, as far as regards spontaneous development, in so unnatural a state, that their nature cannot but have been greatly distorted and disguised; and no one can safely pronounce that if women's nature were left to choose its direction as freely as men's, and if no artificial bent were attempted to be given to it except that required by the conditions of human society, and given to both sexes alike, there would be any material difference, or perhaps any difference at all, in the character and capacities which would unfold themselves. I shall presently show, that even the least contestable differences which now exist, are such as may very well have been produced merely by circumstances, without any difference of natural capacity'. *The Subjection of Women*, *op. cit.* (Note 18), p. 190. See Note 11, above. Darwin referred to *The Subjection of Women* in a footnote to this section (*The Descent of Man*, *op. cit.* [Note 33], p. 564): 'J. Stuart Mill remarks (*The Subjection of Women*, 1869, p. 122), "The things in which man most excels woman are those which require most plodding, and long hammering at single thoughts". What is this but energy and perseverance?'. Compare this with Darwin's description of his own 'mental qualities' where he attributed his success as a 'man of science' to, among other qualities, 'unbounded patience in long reflecting over any subject – industry in observing and collecting facts'. (*The Autobiography of Charles Darwin*, *op. cit.* [Note 1], pp. 139–145.) See also his letter to Francis Galton of 1870, where he stressed the importance of 'zeal and hard work' in intellectual achievement (quoted in full, Note 138 below).

⁴⁹ C. Darwin, *op. cit.* (Note 33), p. 563.

⁵⁰ *Ibid.* p. 564.

⁵¹ *Ibid.* p. 565.

⁵² *Ibid.* p. 565 and pp. 227–239. These rules of inheritance were quite consistent with Darwin's belief that acquired characters could be inherited and that sex was determined by the relative contributions of the parents. Thus, if males required more intelligence for hunting or other male activities, this would extend their intelligence during their life and would be inherited by their offspring. If the male contributed a greater complement to the individual offspring, then it would be male and would be more likely to inherit the higher intelligence acquired by the father. Of course, if the child were a daughter, some of the characteristics of the father would be inherited, but these would be in a smaller proportion than in the case of a son. Over successive generations, slight increases in intelligence acquired by males would gradually accumulate and become proportionately greater in males than in females. Thus Darwin's views were compatible with his ideas on inheritance. The real issue is whether males *are* in fact superior in intelligence to females, and Darwin gave no factual support to this assumption, arguing entirely in social terms and citing the platitudes of his time. It is interesting to note that even if hunting man *did* require more intelligence for his male pursuits (which is dubious), on current theories of inheritance, any intelligence giving the hunting male an advantage would be inherited equally by his daughters and sons. I am indebted to my colleague Margaret Campbell for her clarification of this point.

⁵³ C. Darwin, *op. cit.* (Note 33), p. 565.

⁵⁴ *Ibid.* pp. 565–566.

⁵⁵ *Ibid.* p. 564.

⁵⁶ *Ibid.*

⁵⁷ See S. J. Gould, *Ontogeny and Phylogeny* (Cambridge, Mass. and London, 1977), pp. 115–166.

⁵⁸ 'In the next chapter I shall make some few remarks on the probable steps and means by which the several mental and moral faculties of man have been gradually evolved. That such evolution is at least possible, ought not to be denied, for we daily see these faculties developing in every infant; and we trace a perfect gradation from the mind of an utter idiot, lower than that of an animal low in the scale, to the mind of a Newton.' (C. Darwin, *op. cit.* [Note 33], p. 127.) For a discussion of the rôle of recapitulatory theory in the development of Darwin's evolutionary theory, see E. Richards, 'The German Romantic Concept of Embryonic Repetition and its Role in Evolutionary Theory in England up to 1859', Ph.D. Dissertation, University of New South Wales, 1976. See also J. M. Oppenheimer, 'An Embryological Enigma in the *Origin of Species*', in *Forerunners of Darwin: 1745–1859* eds B. Glass, O. Temkin and W. L. Straus (Baltimore, 1959), pp. 292–322.

⁵⁹ C. Vogt, *Lectures on Man: His Place In Creation, and in the History of the Earth* ed. J. Hunt (London, 1864), p. 183.

⁶⁰ The polygenists of the nineteenth century generally believed that the human races were aboriginally distinct, in opposition to the monogenists who advocated an original racial unity in terms consistent with the biblical account. Vogt managed to reconcile his racist polygenist belief with his Darwinism by arguing that the human races were actually different species whose separate lines of evolution might be traced back into the very remote past to a common ancestry, but whose current differences were so great as to be virtually unbridgeable. Although Darwin did not agree with the polygenist categorization of human races as distinct species, he seems to have agreed with Huxley that the Darwinian theory satisfactorily reconciled the monogenist emphasis on human unity with the polygenist insistence on the maximum of racial

divergence consistent with an extremely remote common ancestry. See G. W. Stocking, *Race, Culture and Evolution. Essays in the History of Anthropology* (New York, 1968); G. W. Stocking, 'What's in a Name? The Origins of the Royal Anthropological Institute', *Man* VI, 1971, pp. 369–390; C. Darwin, *op. cit.* (Note 33), pp. 176–178. See also Note 78 below.

⁶¹ See C. Darwin, *op. cit.* (Note 33), p. 1.

⁶² *Ibid.* p. 557.

⁶³ *Ibid.* p. 566.

⁶⁴ C. Vogt, *op. cit.* (Note 59), pp. 81–82.

⁶⁵ See S. J. Gould, *op. cit.* (Note 57).

⁶⁶ C. Darwin, *op. cit.* (Note 33), p. 594.

⁶⁷ *Ibid.* p. 594. See also pp. 46–47 and p. 216.

⁶⁸ G. Jones, *op. cit.* (Note 20), p. 16.

⁶⁹ See G. Jones, *ibid.* and J. C. Greene, *op. cit.* (Note 20).

⁷⁰ 'Darwin's Notebooks on Transmutation of Species', *op. cit.* (Note 20), Third Notebook, p. 139. At this stage, Darwin was still doubtful of the generality of this argument, as his question mark indicates. He wrote after the above: 'Opposed to these facts are effects of castration on males and of age or castration in females'. By the time of *The Descent*, he presented the effects of male castration as 'striking' confirmation of his argument for the intellectual inferiority of women via sexual selection (C. Darwin, *op. cit.* (Note 33), p. 565).

⁷¹ 'Darwin's Notebooks on Transmutation of Species', *op. cit.* (Note 20).

⁷² Darwin's Notebooks on 'Man, Mind and Materialism', published in H. E. Gruber, *op. cit.* (Note 20), p. 339.

⁷³ *Ibid.* p. 332.

⁷⁴ C. Darwin, *op. cit.* (Note 33), p. 222.

⁷⁵ R. Hubbard, *op. cit.* (Note 14), pp. 18–19.

⁷⁶ C. Darwin, *op. cit.* (Note 33), p. 596.

⁷⁷ *Ibid.* p. 579.

⁷⁸ J. C. Prichard, *Researches into the Physical History of Man* ed. G. W. Stocking (Chicago and London, 1973), pp. 41–46. Prichard was no biological evolutionist but more a 'diffusionist' who was concerned with the problem of explaining human variation in terms consistent with the biblical account that all humanity had descended from a single human family – presumably that of Noah. His concept of 'sexual selection', while in some respects similar to Darwin's, was advanced in thoroughly teleological terms. Moreover, Prichard's views were modified in response to social pressure, so that in subsequent editions of *The Researches* he dropped his emphasis on sexual selection as a forming factor of race and developed his argument in terms of a correlation of climate and physical type. Whether or not Darwin was familiar with Prichard's earlier ideas is not clear. As far as can be ascertained, he read only the third and fourth editions of Prichard's *Researches* (F. Darwin (ed.), *op. cit.* (Note 23), Vo. I, p. 46). But see J. C. Greene *op. cit.* (Note 20), p. 4. The notion of aesthetic preference as a factor in racial variation was not unique to Prichard. It was also suggested by Edward Blyth (1835), whose work was certainly familiar to Darwin (L. Eiseley, *Darwin and the Mysterious Mr. X*, London, 1979, p. 106). From the context of Blyth's remarks, it seems he adopted the idea from Prichard or possibly from William Lawrence's *Lectures on Physiology, Zoology and the Natural History of Man* (1819), with which Darwin was also familiar. While on the subject of historical precedent, the initial stimulus for Darwin's interest in sexual selection (though not for the notion of aesthetic preference) undoubtedly came from the *Zoonomia, or, the Laws of Organic Life* (1791) of his grandfather Erasmus Darwin. Erasmus

wrote of the effect of male combat in ensuring the propagation of the 'strongest and most active' males, and this is clearly the source of Darwin's contention that sexual selection via male combat enhances the action of natural selection. See M. T. Ghiselin, 'Two Darwins: History versus Criticism', *Journal of the History of Biology* IX, 1976, pp. 121–132, p. 127; also Gruber's remarks on the 'family *Weltanschauung*' shared by the two Darwins, *op. cit.* (Note 20), pp. 49–52.

⁷⁹ The evidence of the Notebooks, sketchy though it is, supports the contention that Darwin charted his own course to sexual selection with the help of a few nudges from his predecessors. The Notebooks catalogue numerous observations on human and animal sexual behaviour and sexual differences, and some speculation on the rôle of aesthetic factors in reproduction, but not the concept of sexual selection which did not appear in Darwin's account of evolutionary processes until the 'Sketch' of 1842, to be expanded in the 'Essay' of 1844. Both these early accounts of sexual selection are entirely androcentric in their description of animal sexual behaviour, and the discussion of sexual selection in the 'Essay' concludes with the analogy with artificial selection: 'This natural struggle among the males may be compared in effect, but in a less degree, to that produced by agriculturalists who pay less attention to the careful selection of all the young animals which they breed and more to the occasional use of a choice male'. (*The Foundations of the Origin of Species* ed. F. Darwin, Cambridge, 1909, p. 93; see also p. 10.)

⁸⁰ See for instance M. Ruse, 'Charles Darwin and Artificial Selection', *Journal of the History of Ideas* XXXVI, 1975, pp. 339–350; R. M. Young, *op. cit.* (Note 6, 1971).

⁸¹ See for example: C. Darwin, *op. cit.* (Note 33), p. 172.

⁸² Darwin to Wallace, 1868 in C. Darwin, *op. cit.* (Note 23), Vol. II, p. 84.

⁸³ M. T. Ghiselin, *op. cit.* (Note 8), p. 220.

⁸⁴ *Ibid.* p. 218.

⁸⁵ *Ibid.* p. 230.

⁸⁶ J. S. Mill, *op. cit.* (Note 18), p. 151.

⁸⁷ H. Litchfield, *Emma Darwin, A Century of Family Letters, 1792–1896* (London, 1915), Vol. II, p. 45.

⁸⁸ *Ibid. passim*; also G. Himmelfarb, *op. cit.* (Note 21), pp. 196–197.

⁸⁹ H. Litchfield, *op. cit.* (Note 87), Vol. II, p. 23.

⁹⁰ *Ibid.* pp. 13, 24.

⁹¹ C. Darwin, *op. cit.* (Note 1), pp. 235–239, 97. The one woman of Darwin's acquaintance who might have challenged his conventional notions of women was Harriet Martineau, a close friend of his brother Erasmus, who moved in more radical and literary circles than Charles. Martineau, when Charles knew her, was already a noted writer and intellectual, well-travelled and an ardent defender of women's rights. It is possible that it was through knowing Martineau, an acknowledged female sceptic, that Darwin decided to discuss his religious doubts with Emma. For Martineau's views on the emancipation of women, see *The Feminist Papers* ed. A. Rossi (New York, 1973), pp. 118–143.

⁹² H. Litchfield, *op. cit.* (Note 87), Vol. II, p. 56.

⁹³ C. Darwin, *op. cit.* (Note 1), pp. 96–97.

⁹⁴ H. Litchfield, *op. cit.* (Note 87), Vol. I, pp. 61–62.

⁹⁵ *Ibid.* Vol. II, p. 172 and *passim*.

⁹⁶ *Ibid.* Vol. I, pp. 1–14.

⁹⁷ *Ibid.* p. 14.

⁹⁸ C. Darwin, *op. cit.* (Note 1), pp. 95–96.

⁹⁹ Emma's dowry was a bond of £5000 and an allowance of £400 a year. See: H. Litchfield, *op. cit.* (Note 87), Vol. II, p. 3.

¹⁰⁰ G. Himmelfarb, *op. cit.* (Note 21), p. 142. Himmelfarb is one of the few Darwin historians to have subjected Darwin's concept of sexual selection to a searching critique and her pithy criticisms are often very apt: '[T]his standard of beauty that is so capricious among savages must have been even more so among prehistoric men, to favor a patch of hair around the chin of man and to discourage it on woman. To complicate matters, this capriciousness must have remained constant for an untold number of generations, if the species was to evolve at the slow pace Darwin set for it. It was a bold experiment to make so tenuous and hypothetical an idea as the aesthetic standards of our ape-like progenitors bear the burden of such weighty matters as the evolution of man from the animals and the distinctions of sex and race' (p. 366). Although she perceived the anthropomorphism of Darwin's discussion of sexual selection (p. 346), Himmelfarb failed to discern its androcentrism. Unfortunately, her lack of customary reverence for her subject and the gusto with which she set about mowing down this tall poppy provoked a storm of criticism from more conventional Darwin scholars, and her work (in many respects very good) was not well reviewed.

¹⁰¹ Cf. G. Pickering, *Creative Malady* (London, 1974).

¹⁰² F. Darwin (ed.), *op. cit.* (Note 19), Vol. I, p. 159.

¹⁰³ *Ibid.* p. 136.

¹⁰⁴ Henrietta's words, *ibid.* p. 137.

¹⁰⁵ G. Raverat, *Period Piece, a Cambridge Childhood* (London, 1954), p. 99. Darwin's other surviving daughter Bessy never married and was judged incompetent by her relations: 'She was not good at practical things . . . and she could not have managed her own life without a little help and direction now and then' (*ibid.* p. 121). Not that I am suggesting that the sons emerged unscathed from the over-protective care of Charles and Emma. All had their share of the 'family hypochondria' and 'lived all their lives under [Darwin's] shadow' (*ibid.* p. 177). Nevertheless, all had professions of one kind or another and were not confined to the domestic sphere like their sisters. One even married a 'feminist' (*ibid.* p. 169) and Francis Darwin's second wife was Ellen Crofts, a Fellow and lecturer in English literature at Newnham (*ibid.* p. 162).

¹⁰⁶ See B. Ehrenreich and D. English, *For Her Own Good: 150 Years of the Experts' Advice to Women* (London, 1979), Ch. 4, 'The Sexual Politics of Sickness'; see also papers by Ann Douglas Wood, Carol Smith-Rosenberg and Regina Morantz in *Clio's Consciousness Raised* (New York, Evanston, San Francisco, London, 1974).

¹⁰⁷ C. Darwin, 'A Biographical Sketch of an Infant' in H. E. Gruber, *op. cit.* (Note 20), pp. 465–474. This paper, published in 1877, was based on observations Darwin had made of his own children and notes he kept in a diary on the development of his oldest son, William. See Note 58 above.

¹⁰⁸ H. Litchfield, *op. cit.* (Note 87), Vol. II, p. 178.

¹⁰⁹ C. Darwin, *op. cit.* (Note 1), p. 12.

¹¹⁰ H. Litchfield, *op. cit.* (Note 87), Vol. II, p. 196.

¹¹¹ *Ibid.* pp. 204–205.

¹¹² C. Darwin, *op. cit.* (Note 33), p. 563.

¹¹³ H. Litchfield, *op. cit.* (Note 87), Vol. II, p. 6.

¹¹⁴ J. W. Burrow, 'Introduction' to *The Origin of Species*, *op. cit.* (Note 26), p. 41.

¹¹⁵ J. S. Mill, *op. cit.* (Note 18), p. 128.

¹¹⁶ See E. J. Hobsbawm, *The Age of Capital: 1848–1875* (London, 1975), Ch. 14; E. J.

Hobsbawm, *The Age of Revolution* (London, 1973), Chs. 12, 13, 15; E. Mendelsohn, 'The Continuous and the Discrete in the History of Science' in *Constancy and Change in Human Development*, eds. O. G. Brim and J. Kagan (Cambridge, Mass., 1980). Mendelsohn writes: 'During the course of the nineteenth century the term *evolution* came to be contrasted directly with *revolution*'. In the earlier part of the century, evolutionary speculations such as those of Erasmus Darwin and Robert Chambers were opposed for largely political reasons, because in a period of great social and industrial upheaval, they were perceived as threatening social stability and morality. See: N. Garfinkle, 'Science and Religion in England, 1790–1800: The critical Response to the Work of Erasmus Darwin', *Journal of the History of Ideas* XVI, 1955, pp. 376–388; M. Millhauser, *Just Before Darwin: Robert Chambers and Vestiges* (Connecticut, 1959).

¹¹⁷ R. M. Young, 'The Impact of Darwin on Conventional Thought' in *The Victorian Crisis of Faith*, ed. A. Symondson (London, 1974), p. 28. See also J. W. Burrow, *Evolution and Society: A Study in Victorian Social Theory* (Cambridge, 1966), Chs. 3 and 4.

¹¹⁸ Two recent studies have demonstrated the importance of the writings of social theorists and political economists such as Comte, Adam Smith, Dugald Stuart and James McIntosh as well as Malthus, in the genesis of Darwin's concept of natural selection: S. Schweber, *op. cit.* (Note 20) and E. Manier, *op. cit.* (Note 20). But the classic study remains R. M. Young's 'Malthus and the Evolutionists: The Common Context of Biological and Social Theory', *op. cit.* (Note 6).

¹¹⁹ J. W. Haller and R. M. Haller, *The Physician and Sexuality in Victorian America* (Urbana, 1974), pp. 61–62.

¹²⁰ See for instance the papers in *The Comparative Reception of Darwinism*, ed. T. F. Glick (Austin and London, 1974); E. Mendelsohn, *op. cit.* (Note 116).

¹²¹ See R. M. Young, *op. cit.* (Note 117). The classic study is R. Hofstadter's *Social Darwinism in American Thought* (first published in 1944, Revised Edition, Boston, 1955). There have been some attempts to revise Hofstadter's thesis on the grounds that it was possible to encompass several meanings—including a non-competitive model of society—within the spectrum of Social Darwinism (notably R. J. Wilson, *Darwinism and the American Intellectual*, Homewood, 1967). But see the comments by G. Jones, *op. cit.* (Note 20), p. 19; also J. A. Rogers, 'Darwinism and Social Darwinism', *Journal of the History of Ideas* XXXIII, 1972, pp. 265–280; J. C. Greene, *op. cit.* (Note 20).

¹²² Darwin wrote to Lyell in 1860: 'I have received, in a Manchester newspaper, rather a good squib, showing that I have proved "might is right", and therefore that Napoleon is right, and every cheating tradesman is also right'. (F. Darwin (ed.), *op. cit.* (Note 19), Vol. II, p. 262.)

¹²³ G. Jones (*op. cit.* [Note 20], pp. 17–19) has suggested that the alliance of Darwinian biology and Spencerian social evolutionism profited Darwin in a period when his concept of natural selection was facing 'formidable problems' posed by the lack of a satisfactory theory of heredity. It 'secured the survival of his theory as a major part of British scientific and intellectual tradition in the later nineteenth and early twentieth century before its reintegration with the theory of heredity in the 1920s'. The discrimination of Darwin from Social Darwinism that is so frequently urged by historians is not as simple as they suggest. See Note 5.

¹²⁴ R. M. Young, *op. cit.* (Note 6).

¹²⁵ Written 28 March 1871: H. Litchfield, *op. cit.* (Note 87), Vol. II, p. 202.

¹²⁶ G. Himmelfarb, *op. cit.* (Note 21), pp. 354–359.

¹²⁷ *Ibid.* pp. 356–357. Hobsbawm (*op. cit.* [Note 116, 1975], pp. 167–169) writes that the

Paris Commune was 'more formidable as a symbol than as a fact'. Although it did not seriously threaten the bourgeois order, its brief period of existence created a wave of panic and hysteria, as the international press accused it variously of 'instituting communism, expropriating the rich and sharing their wives, terror, wholesale massacre, chaos, anarchy and whatever else haunted the respectable classes'. After the Commune, what their 'betters' feared was not social revolution in general, but *proletarian* revolution.

¹²⁸ R. M. Young, *op. cit.* (Note 117), p. 23.

¹²⁹ Cited in R. Hofstadter, *op. cit.* (Note 121), p. 45.

¹³⁰ W. F. Cannon, 'The Bases of Darwin's Achievement: A Revaluation', *Victorian Studies* V, 1961, pp. 109–134; R. M. Young, *op. cit.* (Note 6, 1969); R. M. Young, *op. cit.* (Note 117); P. J. Bowler, 'Darwinism and the Argument from Design: Suggestions for a Re-evaluation', *Journal of the History of Biology* X, 1977, pp. 29–43.

¹³¹ R. M. Young, *op. cit.* (Note 117), p. 24.

¹³² J. W. Burrow, *op. cit.* (Note 117), pp. 106–107.

¹³³ *Ibid.* See also Note 91, above. The Seneca Falls Declaration on Women's Rights of 1848 began with the words: 'When, in the course of human events, it becomes necessary for one portion of the family of man to assume among the people of the earth a position different from that which they have hitherto occupied, but one to which the laws of nature and of nature's God entitle them . . .' (A. Rossi [ed.], *op. cit.* [Note 91], pp. 415–416).

¹³⁴ Primarily through the law of inheritance of acquired characters. See Note 32 above. Nurture thus merged into nature. As Greene (*op. cit.* [Note 20] p. 24) observes: 'The "Lamarckian" principle of the inheritance of acquired characters, far from constituting a rival principle of explanation, was viewed as cooperating with the law of natural selection in bringing about the gradual improvement of the human race'.

¹³⁵ C. Darwin, 'Old and Useless Notes', published in: H. E. Gruber *op. cit.* (Note 20), p. 390.

¹³⁶ Darwin's Notebooks on Transmutation, *op. cit.* (Note 20), Second Notebook, p. 220.

¹³⁷ C. Darwin, *op. cit.* (Note 33), pp. 617–618.

¹³⁸ C. Darwin, *op. cit.* (Note 1), p. 43. Galton's influence on Darwin in this respect was considerable. See Darwin's letter to Galton of 1870: 'You have made a convert of an opponent in one sense, for I have always maintained that, excepting fools, men did not differ much in intellect, only in zeal and hard work; and I still think [this] is, an eminently important difference' (F. Darwin [ed.], *op. cit.* [Note 23], Vol. II, p. 41). See also: J. C. Greene, *op. cit.* (Note 20).

¹³⁹ See G. Weber, 'Science and Society in Nineteenth Century Anthropology', *History of Science* XII, 1974, pp. 260–283, pp. 279–282.

¹⁴⁰ Cited by G. Weber, *Ibid.* p. 280.

¹⁴¹ Cf. L. Doyal, *The Political Economy of Health* (London, 1979), p. 148.

¹⁴² T. H. Huxley, 'Emancipation – Black and White' (1865) in: *Collected Essays* (New York, 1898), Vol. III, pp. 66–75 (at p. 71).

¹⁴³ *Ibid.* pp. 73–75.

¹⁴⁴ See: S. Sleeth Mosedale, *op. cit.* (Note 14); F. Alaya, *op. cit.* (Note 14). J. Conway, 'Stereotypes of Femininity in a Theory of Sexual Evolution', *Victorian Studies* XIV, 1970, pp. 47–62; E. Fee, 'The Sexual Politics of Victorian Social Anthropology' in *Clio's Consciousness Raised*, *op. cit.* (Note 106), pp. 86–102.

¹⁴⁵ P. Geddes and J. A. Thomson, *The Evolution of Sex* (1889–1892), cited by S. Sleeth Mosedale, *op. cit.* (Note 14), p. 37.

¹⁴⁶ Cf. K. Figlio, 'Chlorosis and Chronic Disease in Nineteenth Century Britain: The Social

Constitution of Somatic Illness in a Capitalist Society', *Social History* III, 1978, pp. 167–197.

¹⁴⁷ See E. J. Hobsbawm, *Industry and Empire* (Harmondsworth, 1979), pp. 127–132.

¹⁴⁸ See J. N. Burstyn, 'Education and Sex: The Medical Case Against Higher Education for Women in England, 1870–1900', *Proceedings of the American Philosophical Society* CXVII, 1973, pp. 79–89.

¹⁴⁹ L. Doyal, *op. cit.* (Note 141), p. 151.

¹⁵⁰ G. Weber, 'Science and Society in Nineteenth Century Anthropology', *op. cit.* (Note 139), p. 279. See also: E. Fee, *op. cit.* (Note 106). Burstyn (*op. cit.* [Note 198], p. 81) makes the point that 'medicine was the first occupation to be assailed by women in their attempts to enter the professions, and it was medical practitioners who made the strongest attack against higher education for women'. In an age of extreme reticence about sex, it was considered by many that women would make more appropriate gynaecologists and obstetricians than men. The majority of nineteenth-century anthropologists and biologists were doctors by training, and a persuasive case could be made that they had a professional interest in warding off feminine competition that lent itself readily to anthropological and biological endorsements of the status quo.

¹⁵¹ See papers by Alaya, Sleeth Mosedale, Fee, Burstyn, Ennenreich and English, Smith-Rosenberg and Morantz, previously cited, Notes 14, 106 and 144.

¹⁵² F. Alaya, *op. cit.* (Note 14), pp. 261–262.

¹⁵³ A. Brown Blackwell, *The Sexes Throughout Nature* (New York, 1875), extract reprinted in *The Feminist Papers*, *op. cit.* pp. 356–377. I am indebted to Randall Albury for this point; see Note 20 above.

¹⁵⁴ *Ibid.* pp. 376–377.

¹⁵⁵ The socialist and visionary, Eliza Burt Gamble, who offered the other major nineteenth-century rebuttal of Darwin's arguments for the continuing inferiority of women, was an even more thoroughgoing Darwinian than Brown Blackwell. She entirely accepted and endorsed Darwin's account of the differentiation of the sexes, but held to the view that it confirmed woman's innate superiority. According to Gamble all 'progressive' moral and social principles stem from woman's maternal instincts. Man is innately egoistic and selfish, concerned primarily with the 'gratification of his animal instincts' and to this end he has dispossessed woman of her 'fundamental prerogative' of aesthetic choice. Women have become 'economic and sexual slaves . . . dependent upon men for their support'. Gamble looked forward to the time when women would emerge from the 'murky atmosphere of a sensuous age', regain their rightful power of sexual selection and through the transmission of their 'more refined instincts and ideas peculiar to the female organism' (such as altruism, sympathy, etc.) to their offspring, found a 'new spiritual age': 'society advances just in proportion as women are able to convey to their offspring the progressive tendencies transmissible only through the female organism'. See E. B. Gamble, *The Sexes in Science and History: An Inquiry into the Dogma of Woman's Inferiority to Man* (1894), Revised Edition (New York and London, 1916).

¹⁵⁶ F. Darwin (ed.), *op. cit.* (Note 23), Vol. II, p. 77.

¹⁵⁷ See Huxley's letter to Lyell of 1860, *Life and Letters of Thomas Henry Huxley* ed. L. Huxley (London, 1900), Vol. I, pp. 211–212; see also pp. 387, 417; and J. N. Burstyn, *op. cit.* (Note 148), p. 88.

¹⁵⁸ By Darwin's death, his estate amounted to £282 000, a sum compounded of money inherited from his father, Emma's dowry and income from investments. His annual income from investments alone (apart from royalties on his books) was £8000, on which he paid £40 income tax. See G. Himmelfarb, *op. cit.* (Note 21), p. 134.

¹⁵⁹ Darwin to his son George, 1881, in H. Litchfield, *op. cit.* (Note 87), Vol. II, p. 245.

¹⁶⁰ See Note 16 above.

¹⁶¹ G. J. Romanes, 'Mental Differences between Men and Women', *The Nineteenth Century* XXI, 1887, pp. 654–671; S. Sleeth Mosedale, *op. cit.* (Note 14), pp. 17–22.

¹⁶² S. Sleeth Mosedale, *ibid.* p. 36.

¹⁶³ See Darwin's letter to Spencer, in F. Darwin (ed.), *op. cit.* (Note 23), Vol. I, pp. 351–352. It could be argued that Darwin's endorsement of Vogt's recapitulatory argument was far more pernicious in its effects. Most nineteenth-century arguments for the lower evolutionary status of women sooner or later resorted to recapitulation theory.

¹⁶⁴ F. Darwin (ed.), *op. cit.* (Note 23), Vol. II, p. 93.

¹⁶⁵ See the papers by Simpson, Dobzhansky and Mayr in *Sexual Selection and the Descent of Man, 1871–1971* ed. B. Campbell (London, 1972).

¹⁶⁶ See the papers by Ehrman (esp. p. 127, shades of Galton!), Trivers and Fox in B. Campbell (ed.), *op. cit.* (Note 165); E. O. Wilson, *Sociobiology: The New Synthesis* (Cambridge, 1975) and *On Human Nature* (Cambridge, 1978), Chs. 2, 4, 6; W. Wickler, *The Sexual Code: The Social Behaviour of Animals and Men* (Garden City, 1973); R. Dawkins, *The Selfish Gene* (Oxford, 1976), Ch. 9.

¹⁶⁷ M. T. Ghiselin, *op. cit.* (Note 11), p. 263. Ghiselin, like most sociobiologists, engages in some rhetoric on the distinction of 'ought' from 'is' (p. 248). Nevertheless he erects a 'new theory of moral sentiments' based on reproductive competition ('we have evolved a nervous system that acts in the interests of our gonads, and one attuned to the demands of reproductive competition') on the grounds that through 'self-discipline' we may 'perceive the world as it really is' and that 'truth has ethical significance' (p. 263).

¹⁶⁸ Female-centred theories. See for instance E. Morgan, *The Descent of Woman* (London, 1973); E. Reed, *Woman's Evolution* (New York, 1975).

¹⁶⁹ An earlier draft of this paper has benefited considerably from the comments and criticisms of Randall Albury, Ian Langham, David Oldroyd and John Schuster. Needless to say, the present version is entirely the author's own responsibility.