

can help identify social constructions by recognizing that alternative, non-Western, perspectives do exist.

The scientific method is a useful paradigm for some aspects of sexology. However, it is important for researchers to recognize that subjectivity plays a large role in this model, and that the observations and the interpretations made from them are never value-free. There must be a return to rigorous testing of hypotheses using data gathered independently from the original source. Theories must be constantly reevaluated; they should never be left to fossilize into 'facts'. Since human sexuality subsumes a variety of topics, many of which have roots in other disciplines, full advantage should be taken of related fields and their respective methods of research. The results of such analyses may be much more complex and less intuitively satisfying. Complacency, however, has no place in proficient research.

THE POLITICS OF LOVE:
Sexual Selection Theory and the Role of the Female

Penny Young
McMaster University

ABSTRACT

Since the publication in 1871 of Darwin's *The Descent of Man*, sex has been deeply entrenched within the studies of the biological sciences. Over the years, much controversy has surrounded Darwin's theory of sexual selection, comprised of two components -- male/male competition for mates, and female choice of males for mates (Darwin 1871:215). For the purpose of this present discussion, the importance of the females of the species in sexual selection theory will be addressed, and the modifications and manipulations of this role in the conceptualization of the sexual selection hypothesis will be critically examined.

RÉSUMÉ

Depuis la publication en 1871 de *The Descent of Man*, par Darwin, l'étude du sexe a fait partie intégrale des sciences biologiques. Avec le passage du temps, une controverse développa se rapportant à la théorie de sélection sexuelle de Darwin, qui comporta deux éléments: la compétition entre mâles pour leurs partenaires, et le choix des femelles pour leur partenaires mâles (Darwin 1871:215). Dans le contexte de cette discussion, l'importance des femelles dans la théorie de sélection sexuelle est considérée, et les modifications et manipulations de ce rôle dans la conceptualization de l'hypothèse de la sélection sexuelle sont examinées critiquement.

INTRODUCTION

penus envy they call it
 think how handy to have a thing
 that poked out; you could just shove
 it in any body, whang whang & come,
 wouldn't have to give a shit.
 you know you'd come!
 wouldn't have to love that person,
 if you couldn't get relief for free,
 pay a little \$, whang whang & come.
 you wouldn't have to keep, or abort.
 wouldn't have to care about the kid.
 wouldn't have to fear sexual violation.
 penus envy, they call it.
 the man is sick in his heart,
 that's what I call it.

(Alta 1973:295 cited in Kelly 1987:176)

While a great deal of energy has been expended expressing views such as those expressed in Alta's poem, little serious academic attention has been given to the study of sex. However, since the publication in 1871 of Darwin's *The Descent of Man*, sex has been deeply entrenched within the studies of the biological sciences. Over the years, much controversy has surrounded Darwin's theory of sexual selection (Catchpole 1988; Gibson 1988; Bradbury and Andersson 1987; Campbell 1972; and others). The sexual selection theory, called intersexual selection by other authors, was comprised of two components -- male/male competition for mates, and

female choice of males for mates (Darwin 1871:215). Males were depicted as evolving adaptive weapons of offense and defense for male/male combat and females were portrayed as developing an "aesthetic" sense for choosing between males (Darwin 1871:213,217). Although most biologists accepted the first component of Darwin's theory with ease, most had difficulties in accepting the latter component (Catchpole 1988:282; Fee 1976:184; Mayr 1972:88). Even though empirical studies to date in biology were lacking any evidence to substantiate either component of sexual selection theory, male-competition appeared to fit with the assumptions of the middle-class, white male scientists who were Darwin's colleagues, while the concept of female choice radically opposed the image and role of women at the time (Hubbard and Lowe 1979:31). For the purpose of this present discussion, the importance of the females of the species in sexual selection theory will be addressed, and the modifications and manipulations of this role in the conceptualization of the sexual selection hypothesis will be critically examined.

The 'evolution' of the theory of sexual selection will be delineated in terms of its modification over time and how it has been expanded upon by numerous authors. In addition, since science does not exist in a vacuum, the historical background of the evolutionary perspective, and the role of women as perceived by science, will be examined from a feminist perspective. Kuhn (1962) in his *The Structure of Scientific Revolutions*, has noted that the physical sciences are based on 'paradigms', which are the set of assumptions, theories and laws that form the framework of the sciences research. These 'paradigms' inform the

conclusions he [the scientist] does arrive at [which] are probably determined by his prior experience in other fields, by the accidents of his investigation, and by his own individual makeup (Kuhn 1962:4).

Therefore, theoretical feminist frameworks will be utilized to examine the long-standing tradition of oppression of women, the biological sciences' 'paradigm', through biologism or biologically deterministic arguments. Although some feminist perspectives, such as radical feminism, agree that the oppression of women is rooted in their biology, less controversial theoretical frameworks, such as liberal feminism, hold that the oppression of women is fostered in the politics of power relations rather than in their biology. It will be argued that the role assigned to females within the theory of sexual selection can largely be explained by 'meta-narratives', or paradigms in which scientists and science research is conducted, rather

than in any demonstrable difference in roles played by male or females in the sexual realm.

SEXUAL SELECTION

The theory of sexual selection, as denoted by Darwin, was the counterpart to his first evolutionary theory of natural selection outlined in his 1859 treatise *The Origin of Species*. Sexual selection was posed to explain behavioral and physical traits which were incompatible with the "adaptive" principle underlying natural selection. It was readily apparent to Darwin that the male and female sexes in all animals differed in their primary sexual characters or the organs of reproduction; however Darwin also noted the differences between the sexes in what he termed "secondary sexual characters" (Darwin 1871:210). In males, secondary sexual characters consisted of organs of locomotion or prehension, while in females they were organs of nourishment or protection for young (Darwin 1871:210). As noted above, these secondary characters contributed to the two constituent parts of the sexual selection theory -- male/male competition for mates, and female choice of males. The theory was developed to explain the advantage which certain individuals have over others of the same sex and species solely with respect to reproduction (Darwin 1871:211). Such seemingly non-adaptive incongruities as the peacock's tail could then be viewed as adaptive in the context of his theory. Females prefer the more ornamental males, best songsters, and the more pugnacious males, and because of this, males of the species were more modified than females (Darwin 1871:224). As Darwin was without empirical studies to support his theory, he appealed to the experiences of ornithologists and naturalists with respect to insects, fish, birds, and mammals.

Wallace, who simultaneously developed a theory similar to Darwin's natural selection, was one of the most vociferous opponents of Darwin's theory of sexual selection. Wallace was opposed to the separate category of sexual selection for such male traits as elaborate colouring in insects and states

but, surely, it may be the most vigorous or most persevering male that is chosen, not necessarily one more brightly or differently coloured, and this will be true 'natural selection' (1890:275).

Wallace also completely discounted the role of female choice in any sexual or natural selection process

... as the direct evidence for any female selection is almost nil, while the objections to it are certainly weighty, there can be no longer any reason for upholding a theory which is provisionally useful ... (ibid:295).

Wallace accepted the influence of mutual combats of the males in the evolution of sex-limited weapons, and felt that these were explicable through natural selection, but he rejected female choice in the evolution of male ornamentation. What is immediately apparent when comparing Darwin's original exposition of sexual selection and Wallace's objections and assertion of the utility of only one theory of evolution -- natural selection, is the disagreement over the appropriateness of an evolutionary theory which is non-utilitarian or non-functional, and also the stressing of the importance of the females in determining reproductive success. Prior to the discussion of subsequent models, it is enlightening to examine the paradigms existing in the sciences as they address evolutionary biology as well as the role of women.

It is important to note, at the outset, that the development of Darwin's theory of organic evolution -- as characterised by natural and sexual selection -- was the culmination and not the commencement of nineteenth century evolutionary thought (Levins and Lewontin 1985:27). The birth of an ideology of change in natural systems was an essential outcome of the alteration of European social relations that was called the bourgeois revolution (Levins and Lewontin 1985:11). It was a theory imbued with capitalistic materialism, where "fittest" or entrepreneurial class could triumph (Levins and Lewontin 1985:3; Fee 1976:181). The nature of European societies' class and political relations were being transformed, and natural science was replacing religion as the authority to be appealed to (Levins and Lewontin 1985). Organisms were viewed as adapting to a changing external world, and evolving and prospering in ways which were appropriate to their level of "fitness" (Levins and Lewontin 1985:3). Sexual selection theory also was the vehicle to explain the Victorian perception of the power relations between men and women (Levins and Lewontin 1985:32). Yet sexual selection was somewhat "non-utilitarian" and, therefore, was met with resistance from Darwin's counterpart Wallace. However, for Darwin, sexual selection theory adequately explained in an "adaptive" way how each sex had perfected characteristics that were most suitable for their roles and functions -- males required vigour and superior intelligence, while females required a "passive materialism" (Fee 1976:184). For Wallace, even this "passive materialism" of females, as expressed through mate choice, was too extreme an

involvement of women in the realm of sexual and/or power relations and he saw the need to revise the explanation for male ornamentation in a more acceptable way (Fee 1976:184). Nonetheless, like evolution, the conceptualization of sexual selection theory and the role of women in this theory did not remain static, but rather continued to be modified.

EARLY POST-DARWINIAN CONCEPTS OF SEXUAL SELECTION

The next chronological phase of the developments of the sexual selection theory is interesting, in that it consists of biologists taking radically differing perspective on the theory. It is also important to note, as a corollary to the development of the theory, that in the early twentieth century Mendel's early genetic experiments were rediscovered, which provided a mechanism by which to measure the combination and mutations of heritable traits as outlined by Darwin (Campbell 1972).

The first biologist to be considered here is Fisher (1929), and his development of the theoretical model of "runaway sexual selection". He supports Darwin in the belief that female preference determined the elaboration of male traits such as plumage, and states

the further development of the plumage character, will still proceed, by reason of the advantage gained in sexual selection, even after it has passed the point in development at which its advantage in Natural Selection has ceased (Fisher 1958:152).

This runaway selection will proceed until a point is reached where the male trait has become so extravagant that it will be counter-selected for, as their sexual ornaments may diminish their numbers surviving to the breeding season (Fisher 1958:152). Therefore, in a Fisherian evolutionary world, the importance of the females of the species is self-evident.

However, it is necessary to note that not all biologists carried on in the Fisherian tradition, and that Huxley in 1938, was still discounting the validity of sexual selection as a mechanism distinct from natural selection. As Huxley states; "In the first place competition between males for mates, accompanied by any form of female choice, is not the common phenomenon postulated by Darwin ..." (1938:417). Huxley proceeds then to describe how many conspicuous male characters serve natural selection functions (Huxley 1938:418). Although he acknowledges Fisher's theory, he states

though this may be contributory, it cannot be the main agency promoting the evolution of elaborate epigamic (male traits for combat or display) characters" (Huxley 1938:431).

Within Huxley's treatise, one also observes the first (possibly) reference to the ideas that females have a vested interest in the mating process, mainly due to their large contribution of "metabolic energy to egg-production" (Huxley 1938:426). For Huxley, this explains the "reversed courtship" situations where female's attract males by display, and males provide parental care for young (Huxley 1938:426). Huxley does develop consistent arguments for his lack of faith in sexual selection; however, the reader is still left wondering why female choice and sexual selection is so vehemently discredited.

As noted previously, very little evidence to prove or disprove sexual selection theory existed by way of empirical studies in this early research period. So, with the publication in 1948 of Bateman's classical experiment with the fruit fly (or *Drosophila*.) testing sexual selection, a new era in sexual selections studies began. Bateman (1948 cited in Mayr 1972; Trivers 1972), in his work with the fruit fly, attempted to measure sexual selection through variance in mating success. By using chromosomally marked individuals with unmarked individuals, he was able to measure the reproductive success of males and females by searching for markers in the offspring (Bateman 1948 cited in Trivers 1972:137). He noted that male reproductive success varied more widely than female reproductive success, as males could increase their success through increased matings, while female success remained stable (Bateman 1948 cited in Trivers 1972:138). Following from this, the males who did not copulate were unable to do so due to inability to be accepted by the females. Furthermore, Bateman (1948 cited in Ehrman 1972:110) as a result of this experiment, concluded that these females were "discriminatingly passive" while the males were "indiscriminatingly eager". It is also within the context of Bateman's article that the gametic contribution to reproduction was fully articulated. Bateman felt that very little metabolic energy was devoted to the production of sex cells in males, which contrasted with the considerable energy expenditure of females. Additionally, as variance of mating success was only truly possible in males, Bateman concluded that sexual selection is stronger in males than in females.

To return to our discussion of the scientific community and its perception of the role of females, the portrayal of females began to change within the theory of sexual selection. Aside from Huxley's denial of the

theory, the two other biologists appeared to be willing to acknowledge the role of female choice in the mating process. Fisher fully credits female preference as the evolutionary factor for instigating male ornamentation. Upon initial analysis of Bateman's results, one sees that it is the female fruit fly who controls the mating success of the males, yet in Bateman's conclusions he de-emphasizes this fact, and chooses instead to emphasize the bountifulness of male gametes. Bateman's argument clearly illuminates the reluctance of male biologists to relinquish the traditional definition of power in relations between males and females.

In the early twentieth century, scientists were confronted with the obvious changes in women's roles. As demonstrated by the women in the Fisherian models, scientists appeared to be willing to let go of the traditional Victorian evolutionary paradigm, which had rigidly proscribed the desirability of middle-class female idleness (Fee 1976:204). However, Bateman appeared to be attempting to reassert this traditional order. What emerges from this discussion of the implications of this chapter in sexual selection theory is that women were beginning to be considered, not as inferior, but just different (Fee 1976:209), and that this difference appeared to be rooted in their reproductive capacity, which forced them to be "passive materialists" in order to survive.

SEXUAL SELECTION IN THE MID TWENTIETH CENTURY: SOCIOBIOLOGY AND SEXUAL SELECTION

What follows these modifications of the sexual selection theory is a rather reactionary period, and an extreme change in the direction of the research. Williams, in his 1966 treatise, *Adaptation and Natural Selection* does not truly recognize sexual selection theory as a theory unto itself, but rather, he subsumes it within the grand theory of natural selection as Wallace and Huxley have done. Female choice in mate preference is acknowledged, but it is explained by way of the gametic and energetic contribution argument, as originally noted in Bateman. Therefore, as stated by Williams,

the traditional coyness of the female is thus easily attributed to adaptive mechanisms by circumstances for assuming the burdens of motherhood (1966:183).

The evolution of mate choice by females corresponds to their selecting the most "fit" male rather than the male with the pleasing ornamentation (Williams 1966:184).

Trivers' (1972) hallmark publication on "parental investment" in sexual selection, may be considered the theoretical turning point for such discussions. The primary component of sexual selection theory for Trivers is the disproportionate gametic contribution of males versus females. "Parental investment" is defined by Trivers as

any investment by the parent in an individual offspring that increases the offsprings chance of surviving (and hence reproductive success) at the cost of the parent's ability to invest in other offspring (1972:139).

From this starting point, Trivers (1972:141) asserts that the typical parental investment pattern is one with females contributing a great deal -- large eggs and protection for the young -- while males usually only contribute their sex cells. Therefore, female choice is based solely on a male's perceived "fitness", rather than on any pleasing ornamentation. Furthermore, sexual selection is said to operate differentially on the sexes, as parental investment viewed as the key variable in controlling the operation of sexual selection. Due to males typically small investment, sexual selection is stronger in males than in females (Trivers 1972:173,174). It is interesting to note that Trivers completely disregards male displays in the mating process, or that females may "misread" a male's fitness and not mate with the "fittest" males. However, not all biologists were as willing as Trivers to disregard the 'peacock's tail', and Zahavi, in 1975, presented a theory which attempts to address both a male's fitness and their ornamentation.

Zahavi (1975 cited in Maynard Smith 1987:17; Kirkpatrick 1987:48) proposed that the males with bright colours or extravagant ornamentation may also have characters that enhance viability. Zahavi's position, called the "handicap" mechanism, implies that ornamentally-favoured males must also be vigorous with respect to overall "fitness", otherwise they would not have survived until maturity (Zahavi cited in Kirkpatrick 1987:49). Therefore, "Females are selected to mate with bright ("handicapped") males, because by choosing such a mate she will also tend to be choosing other genes for high viability, which will be passed to her offspring (Kirkpatrick 1987:49).

Kirkpatrick (1987) and others (Arnold 1983) have assigned Williams, Trivers and Zahavi to what has been categorized as the "good genes school" of the study of sexual selection theory, as it is grounded in the general intuition that evolution must be adaptive. However, within the context of this discussion, the "good genes school" appears to have a vested interest

in maintaining the traditional "utilitarian" mode of evolutionary theory, despite the fact that Darwin first posited sexual selection theory as apparently "non-adaptive" in the sense that it did not follow the rules of natural selection. For these biologists, the female of the species is acknowledged, however, only if she is making utilitarian-like decisions. No mere whimsy is allowed for females in mate choice, as at any time they must face the "burden of motherhood". As stated by Kirkpatrick (1987:44), this has been the trend in sexual selection studies in the last two decades, which causes one to pause and reconsider whether or not much progress truly has been made in the development of the role of women in sexual selection theory. As Perper states, "The focus on male 'quality' and female 'whimsicality', so common in the biological literature of sexual selection, is simply too close to saying that if women do not choose 'quality' men, then they are irrational" (1989:439). Therefore, the "good genes school" appears to be extending its models to illustrate how women 'ought' to choose their mates, rather than measuring any biological observances.

One particularly contentious issue for most feminists emerging in the early biological literature, and receiving full blown treatment in the Triversian models, is the stated 'fact' of the large metabolic energy of the female egg, which appears to be constantly limiting females lives. As stated by Hubbard,

This brings me to a question that always puzzles me when I read about the female's larger energetic investment in her egg than the male's in his sperm: there is an enormous disproportion in the numbers of eggs and sperms that participate in the act of fertilization (1982:35).

In a recent article by Meredith Small, *Female Primate Sexual Behaviour and Conception: Are There Really Sperm to Spare?* (1988), she contests the assertion that males have unlimited supplies of sperm to fertilize numerous females, and that perhaps the reality is quite the opposite to what is being asserted by the male biologists. For one male reviewer of the article, Kurland,

this cost to males in producing sperm ... should be measured as part of their mating effort, not their parental investment ... Thus female parental investment, not male gametic effort, is the reproductively limiting resource ... (Kurland cited in Small 1988:90).

Yet this statement appears ironic in light of what has been said by biologists, as it would appear that if female gametic effort is measured then why not measure male gametic effort? Sociobiology is the next phase in this discussion of biological models. However, it is pertinent to note that much of what Trivers stated forms the basis of sociobiology's stand on sexual selection. Much of what is stated by the sociobiologists appears to be in strict observance to the tenets of Darwinian evolutionism (Gould 1987:32). However, it is important to recognize how the sociobiologists appear to make the leap from what is apparent in biological observances to what 'ought to be' in nature (Kitcher 1987; Hubbard 1982). As Wilson states, females "show a much greater degree of caution" in the selection of mates

because it [the egg] represents a considerable energetic investment on the part of the mother the embryo is often sequestered and protected ... This is the reason why parental care is normally provided by the female ... (1975:316,317).

For some scholars, sexual selection theory was the forerunner to the recent sociobiological theories, which have sought to root the causes of the social inequalities of the sexes in genetic structures (Fee 1983:13). However, not all sociobiologists ascribe to this sexism, and Kelves (1988) attempts to construct a sociobiology which portrays the female of the species' natural behaviour in a positive light. Yet the familiar quote of Barash holds true for many sociobiologists, that "ironically, mother nature appears to be sexist". For Gould, comments such as these are part of the "speculative storytelling in the adaptationist mode [which] has been the primary weapon from the evolutionary theory used by sexists to keep women in a subservient place" (1987:43). Hubbard mirrors such a position and further states:

The recent resurrection of theory of sexual selection and the ascription of asymmetry to the "parental investments" of males and females are probably not unrelated to the rebirth of the women's movement. We should remember that Darwin's theory of sexual selection was put forward in the midst of the first wave of feminism. It seems that when women threaten to enter as equals into the world of affairs, androcentric scientists rally to point out that our natural place is in the home (1982:36).

Therefore, following from Hubbard's statement, it does not appear too coincidental that the "good genes school", or strictly adaptationist mode of thought, pervaded the literature on sexual selection in the sixties and seventies, as noted by Kirkpatrick. This was a point in time when the women's movement was gaining momentum and political voice, and the social changes advocated for by women's groups were seen as radically upsetting the existing social order. "Equal but different" as a way of perceiving women, which dominated the early feminist and suffragette movements, was replaced with either "just equal" or "different and better" (Pateman 1987:113). Therefore, the birth and the popularity of the sociobiological perception of women appears to demonstrate that when women challenge the status-quo of patriarchal political power, a reactionary backlash occurs, and conservative scientists retreat back to their traditional stance. However, with respect to research concerning sexual selection theory, the prospects do not appear so bleak, as empirical studies and mathematical models appear to be gathering evidence in support of 'non-utilitarian' or 'non-adaptive' and female-centred perceptions of sexual selection (Kirkpatrick 1987).

The debate, until recently, has mainly centred on the conceptualization and orientation of theoretical models of sexual selection. As the aforementioned discussion indicates, very little has been accomplished by way of empirical studies to denote the role of the female (excluding, perhaps, Bateman). However, the studies of Andersson, with the long-tailed widow bird, attempted to measure the effects of female choice on non-adaptive male characteristics (Andersson 1982 cited in Catchpole 1988:290,291). Through the artificial manipulation of male tail length, Andersson noted that males with longer tails experienced higher reproductive success in terms of increased mating frequencies. Another important empirical study is Eberhard's cross-species examination of male genitalia (Eberhard 1985; 1987). Eberhard addresses the female choice hypothesis and the resultant Fisherian runaway sexual selection, by noting that male genitalia function as "internal courtship" devices, and that females perhaps discriminate between males on the basis of more stimulating "devices" (Eberhard 1985:70).

Prior to arriving at this model for the explanation of elaborate male genitalia, Eberhard (1987:4) examines the "lock-and-key" hypothesis, as well as the non-functional hypothesis, which speculates that differences in male genitalia are chance by-products. However, he concludes that both hypotheses are unsubstantiated in his cross-species studies. Additionally, Eberhard's explanation also modifies Darwin's controversial idea that female animals have some sort of "essayistic" sense for discriminating among males (Eberhard 1987:8). Only humans were

thought to have such a capacity to discern beauty. Therefore, if females choose males on the basis of being sexually stimulating due to their genitalia, then female animals require only the ability to interpret tactile information. As scientists perceive themselves as, firstly, fact-finders, then the studies of Andersson and Eberhard will allow for further elaboration in theoretical models of the role of the female in the sexual selection process. Perhaps it will now be possible for our furry sisters to join human females in their struggle to become a recognized component of the sexual selection process.

The progress made in these and other empirical studies is enlightening. Biologists do appear to be assigning importance to female impact on the selection process. However, it is not insignificant that the sociobiological perspective today, which receives a great deal of support, still appears to maintain antiquated perceptions of the world of women and biology. Therefore, one is left feeling that perhaps something more is needed to be done, other than just additional empirical studies. As noted by many feminist scholars and Kuhn (1962), paradigms of how the world 'ought to be' are deeply rooted in the sciences' and scientists' world views. It may be necessary to overturn or completely overthrow the existing order of our capitalistic, materialist power structure in order to facilitate a much needed revolutionized perspective.

FEMINIST PERSPECTIVES ON SEXUAL SELECTION

The feminist vantage point has been continually alluded to throughout the course of this discussion. It is important to note at this point that 'the feminist perspective', which implies a cohesive, consistent approach, has been somewhat misleading. Feminist scholars do not necessarily present their theories as a unified discourse, but, rather, they are comprised of various complementing and competing theoretical frameworks (Jaggar and Rothenberg 1984:xiii). The four main differing perspectives within feminist scholarship are: liberal feminism, traditional Marxist feminism, radical feminism, and socialist feminism.

Liberal feminism finds its origins in the social contract theories of the sixteenth and seventeenth centuries, and it maintains that liberty is required for every individual (ibid:83). With liberty for all, each individual's qualities should be considered talents to be rewarded through the supply and demand of the market economy (ibid:84). Traditional Marxist feminists believe that it is impossible to have genuine equality of opportunity within a class society. For these scholars, if the wealth remains produced by the many, yet the power and the wealth remains in

the hands of the few, then the development of an individual's potential will be subverted. Capitalism is viewed as the oppressing force of women (ibid:85). Radical feminism is a departure from both prior theories, in that women are seen to be oppressed by their biology or reproductive functions, and by male dominance (ibid:86,87). The final theory, socialist feminism, agrees with Marxist feminism on the variation of human nature according to changes in the mode of production, as outlined by Marx and Engels (ibid:87). However, socialist feminism redefines patriarchy in terms of male domination of women's labour power, a domination which is exerted within the home and outside it (Hartmann cited in Jaggar and Rothenberg 1984:8).

Feminist theories, even those which do not directly address women's biology, offer enlightenment to the discussion of the progression of ideas in the theory of sexual selection. Although it would seem ironic that such politicizing feminist research could increase the objectivity of science inquiry, throughout the course of this discussion it has been demonstrated repeatedly that the biological sciences, as they address sexual selection theory, are replete with examples of patriarchal politics (Harding 1986:24). As noted in the discussion regarding the influences of the emerging capitalist power politics on the theory of evolution of Darwin, much has been said about the role of female in sexual reproduction and sexual selection which reflects the constant struggle between men and women over the control of political and economic power. For the radical feminist, women's reproductive functioning causes this oppression. Therefore, they would agree with the Triversian development of the theory as "who gets stuck with the baby" (Perper 1989). Additionally, the socialist feminist perspective would support this essential control over women as they refuse to acknowledge the dichotomy between private and public spheres of control. For socialist and radical feminism, the "personal is political" and to remain within the existing structures of capitalism and patriarchy will prolong the oppression of women (Pateman cited in Phillips 1987:119). However, from the liberal feminist perspective, the future does not appear as bleak. Liberal feminism believes that the sexes do not differ, rather that until the present day inequalities have existed due to lack of educational and employment opportunities (Jaggar and Rothenberg 1984:85). However, the newly emerging liberal feminism (which some authors feel resembles the socialist perspective) stresses that the conflict over public and private spheres of control must be rectified. The public sphere is typically characterised as patriarchally controlled, whereas the private sphere, while male controlled, remains essentially female-centred. For some this appears to be naive as stated by Pateman:

They [feminists] have shown how the family is a major control of the state and how, through legislation concerning marriage and sexuality and the policies of the welfare state, the subordinate status of women is presupposed by and maintained by the power of the state.

Therefore, this liberal feminist perspective allows for the political to be personal, and that women and men may be viewed as "biologically differentiated but not unequal creatures" (ibid: 122). But liberal feminism does not require women to subvert their biology in order to attain equality. Therefore, one can see that much of the controversy and argument concerning the role of the female in sexual selection theory directly corresponds to capitalistic power politics rather than anything in nature. Regardless of what strain of feminism one subscribes to, the implications it provides for challenging the 'objective, value-free' scientific research is incalculable.

As indicated throughout this discussion, sexual selection theory finds its roots in the belief in the supremacy of the capitalist, patriarchal order that was emerging in the nineteenth century. Traditional beliefs concerning the role of women in society, and about who was considered the "fittest" permeate the so-called biological theories concerning all animals. The notion that there is a value-free, pure scientific research is naive, as social biases appear to be escaping the control of science's methodological norms (Harding 1986:21,25). The biological sciences' paradigms are deeply entrenched in this restrictive political and economic system, and this means that the sciences need to be informed by the various feminist frameworks, as well as the other marginal groups which have not been included in this analysis. Being informed in this way will allow the biological sciences to express the true functioning of the biological experience, rather than the norms of the society that these men lived in. Nonetheless, progress is evidenced in the biological sciences, and as more women enter the scientific realm as scholars, and equality is improved in access to employment and educational opportunities, then this rigid paradigm of the nonparticipating or inferior female of the species will hopefully erode, so that in the future, theoretical biological questions will not be posed that intrinsically imply the oppression and passivity of the female of the species.
