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Sperm and liberal feminism

A scientific fantasy

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Initiated by feminist inquiry of the 1960s and 1970s, scientific studies of gender differences generated knowledge about the social and environmental determinants of difference. These findings fitted with liberal notions of egalitarianism, equality and individual agency as well as economic notions of self-interestedness. More recent research challenges these findings about the social nature of gender with theories of the biological bases of gender differences, and these biological theories have been widely circulated through the popular media. The present study examines one of these biological arguments, sperm competition theory, to assess how it has gained attention and apparent acceptance during a cultural moment of acclaimed gains in gender equity and women's rights. The case of sperm competition, a specialised theory in evolutionary biology and psychology, demonstrates the mutability and hybridising of scientific programs to foster political ones: sperm competition theory borrowed the prototype of the independent, active and sexualised woman, a type described in feminist science and theory, to suture a culturally appealing theory of gender differences that nevertheless still retained determinist notions of difference and intimated a more conservative political worldview. Sperm competition theory illustrates changes in North American liberalism and in our everyday understandings of gender, just as it circulates certain anxieties about men and women and a certain pessimism about human nature.

Keywords: gender, reproduction, evolution, liberalism, sperm competition

There was a moment not all that long ago, when feminists thought 'gender' would be an invincible barrier against biology.

(Scott, 1999, p. 19)

Spring 2003 brought forth a special issue of *Signs: Journal of Women in Culture and Society* on gender and science, featuring reports on 'Feminism Inside the Sciences'. In one of these insider reports, Patricia Gowaty traces how feminism changed her field, evolutionary biology. Her review focuses on 'parental investment theory', an evolutionary hypothesis positing that male and female natures have been selected to favour parental care by mothers 'which in turn favoured discriminating, passive females and competitive, profligate, and aggressive males' (p. 901). Upon charting the ways that feminist consciousness fuelled empirical challenges to the original parental investment theory, Gowaty ponders why this feminist work has had limited influence. 'A question I cannot answer is why it has taken so long to incorporate females' perspectives into sex role science', and she added, 'I do not know why in evolutionary psychology the parental investment hypothesis is an axiom...a foundation of evolutionary psychologists' enterprise' (p. 917).

Gowaty's puzzlement over the staying power of a sex-biased science resembles Joan Scott's (1999) on the scientific study of difference. Scott discerned the vulnerability if not waning of 'gender' approaches that take environmental and structural conditions to be productive of sexual difference, and the simultaneous resurfacing of biological determinist explanations of difference. Other scholars have viewed apprehensively or critically the 'new' evolutionary psychology (or resurgence of socio-biology) and its persuasive powers despite its conjectural or weak empirical support (Fausto-Sterling, 1995; Rose and Rose, 2000; Desteno and Salovey, 1996; Pederson, Miller, Putcha-Bhagavatula and Yang, 2002; Eagly and Wood, 1999; Eagly, Wood and Johannesen-Schmidt, in press). Many of these scholars observed a proliferation of what seems like only-recently discredited biological explanations of difference. They noticed, too, the waning of feminist theories of the socially constructed or situated making of gender difference (they differ, however, on the relative influence of biology in the making of gender). The new biological thinking about males and females has transpired without adequate empirical warrant, and without distinctly new or robust theory. This shift to biological reductionism, most notable in evolutionary psychology (marked by its sudden inclusion in undergraduate psychology textbooks as well as mass media news reports), coincides with the appearance of other biological models of sex and gender: premenstrual syndrome (P.M.S.) as a biological state (Parlee, 1991), the biological causes of homosexuality (Terry, 2002), brain imaging work claiming to make visible otherwise invisible sexual difference, and biological explanations of sex differences in psychopathology, to name several.

This noteworthy move in theoretical focus, a swing from the social to the biological, visible to invisible, constructionist to essentialist, and dynamic to reductionist, reverses the ethos of gender science introduced in the 1960s and 1970s. Whereas 'not all that long ago', to borrow Scott's phrase, popular writings located, defined, and examined 'gender' as social, variegated, shifting, and yet powerful determinants of individual behaviour, contemporary accounts are more likely to reveal that sexual difference is hardwired, the result of sexual selection for reproductive success. Not all that long ago, linguist Deborah Tannen (1990) mapped the developmental and social complexities of male and female communication styles and considered how these different styles might explain gender conflicts. Now evolutionary biologist Tim Birkhead (2000) describes the conflict between the sexes as a biological fact, a struggle where 'At any moment in time one sex may have slightly more control than the other, but the battle between the sexes is an evolutionary see-saw – subtle, sophisticated and inevitable' (p. 233). Not all that long ago, Carol Gilligan (1982) offered a cognitive developmental explanation of gender styles in moral reasoning. Now Randy Thornhill and Craig Palmer (2000) explain rape as a fact of nature, an adaptation. Not all that long ago biologist Ann Fausto-Sterling (1986) critically examined sex-biased science and its scientifically untenable theories about male and female brain difference. Now, we can read *Brain Sex* (Pease and Pease, 1999) and *A Mind of Her Own* (Campbell, 2002) to garner scientific truths about the substantial biological differences between male and female psychology.

The concerns of Gowaty and Scott correspond with those of feminists working in science studies and the philosophy of science. These workers also are perplexed by the resilience of problematic scientific notions and the hesitancy for fellow primatologists 'to incorporate females' perspectives' (Gowaty, 2003). Scholars of science studies ask that we probe the gender dimensions of scientific epistemology itself, heeding Karen Barad's claim that 'There is a need to understand the laws of nature as well as the law of the father' (1998, p. 120) or

Elizabeth Wilson's conjecture that in science 'neutral sites are no less implicated in the deployment of patriarchal presumption than are those sites marked as sexed' (1998, p. 19). According to these scholars, not only does contemporary science resist feminist scientific findings but also epistemology must change even more to eliminate androcentrism or sexism.

How can we understand the robust development of a reconstituted, biologically based science of gender? How can we comprehend the apparent neglect of the empirical as well as critical work of feminist scientists and epistemologists? These questions are troubled by two longstanding confusions. The first and simpler of the confusions derives from a recurrent myth of an 'inside' and 'outside' of science and an allied misconception that science inside consists of rule sharers, if not consensus makers, of scientific truth. Historical and sociological research has amply demonstrated the falsity of any such boundaries marking an inside and outside of science. The recent popularised accounts of biological-based gender difference as well as the feminist theories of gender equity before them, confirm how science *is* culture and how science productively participates in the making and sustaining of cultural truths. Appreciating how science is a productive dynamic in culture compels us to examine what sciences come to serve the cultural imaginary and how this nourishment occurs. The growth of evolutionary psychology and its associated theory of sperm competition are cases in point. The second and more complicated problem concerns the putative connections between science, including feminist science, and political culture, specifically liberalism. On the one side, feminist scholars warily regard the rise of biological theories of gender, in part because the history of such theories is rent with sexist ideology and also because biological models of human difference have been and readily can be engaged to conservative or anti-liberal political agendas. On the other side, proponents of the new biology of sex differences, as we shall describe in the case of Steven Pinker, take feminist science to be part and parcel of a wanton liberalism that enthusiastically champions social policies of rights and welfare guarantees and does so at the perilous risk of ignoring important human biological differences and limitations. When science-politics relations are viewed from this perspective, feminist science projects might well be faulted for failing to address the implications of scientific discoveries of difference or articulating the irrelevance of such differences for democratic systems (Scott, 1988).

To map the relations onto such a crude template, however, significantly under-appreciates the dynamic interplay and strategic possibilities of connecting political worldviews and science. The case of sperm competition theory, a specialised theory within the fields of evolutionary biology and psychology, illustrates the shifting and strategic alignments of science and political views. Sperm competition theory shows the inadequacy of thinking about an inside and outside of science and illustrates the mutability or hybridising of scientific programs to foster political ones. The case also helps us understand the emergence of a fairly orthodox science of biological differences in North America's late twentieth-century atmosphere of pro-diversity, pro-rights, and women's rights. In sperm competition theory, strong claims of biological differences between men and women are made appealing by appropriating certain attributes of women (and men) that originally were reported in feminist science and heralded by some as vindications of liberalism. Borrowed by the biological theorists are attributes of human nature that appear to correspond with the prototypic human, late twentieth century liberal capitalism: women as active (not passive), self-interested, competitive, sexual, and choice making. In other words, the success of biological-based gender science is due at least partially to its subversion of feminist scientific claims about men and women (claims that seemed to complement liberalist notions of egalitarianism, equality, and individual agency as well as economic notions of human self-interestedness). In these borrowed knowledges and images women are represented as more active, sexual and rational decision-makers, and men as more vulnerable and anxious, than conventionally believed about the sexes. These gendered human characteristics are then re-inscribed as biological ones.

Liberalism and the 'new' biological sciences

Proponents of the new biological understanding of male and female nature think differently than feminist scholars about the ascendancy of their position. For Steven Pinker, a scholar at the forefront of these new integrative biological sciences, the shift indicates a triumph of science over ideology. According to Pinker (2002) we have long been bamboozled by 'intellectuals' who have insisted that the mind is a blank slate (an insistence that nothing comes with human nature and everything about the mind is the result of experiences). As he describes this 'blank slate' doctrine, 'Change the experiences – by reforming parenting, education, the media, and social rewards – and you can change the

person' (p. 6). Challenging this 'hostile takeover' of the blank slaters, a takeover purportedly executed through the twentieth century by 'philistines in white coats' (p. 69), are the 'new sciences of human nature' positing 'that thinking is a physical process, that people are not psychological clones, that the sexes differ above the neck as well as below it, that the human brain was not exempt from the processes of evolution, and that people in all cultures share mental traits that might be illuminated by new ideas in evolutionary biology' (p. 103). These challenging 'new sciences' have been 'greeted with fear and loathing because they were thought to threaten progressive ideals. All this could be relegated to the history books were it not for the fact that these intellectuals, who once called themselves radicals, are now the establishment, and the dread they sow about human nature has taken root in modern intellectual life' (pp. 104-5).

For Pinker, liberalism takes many forms in and out of science. The narrative field of the so-called doctrinaire intellectuals maps onto a larger political narrative of modern liberalism with its optimism, progressivism, and the welfare policy. The ascendancy of the 'new sciences', as he sees them, thus challenges blank slaters' claims about the contingency, variability, and causal complexity of gender difference. The new biological sciences also challenge the appropriateness of myriad cultural practices, from modern art to educational policy. Replacing this doctrinaire view of human nature with accurate science, then, presumably entails rethinking liberalism and culture more broadly. While Pinker freely adopts a social explanation of scientific work, albeit a simple one, to explain blank slate science as political to the core, he evades the politics of the new sciences. For him,

> Acknowledging human nature does not mean overturning our personal worldviews, and I would have nothing to suggest as a replacement if it did. It means only taking intellectual life out of its parallel universe and reuniting it with science, and, when it is borne out by science, with common sense. The alternative is to make intellectual life increasingly irrelevant to human affairs, to turn intellectuals into hypocrites, and to turn everyone else into anti-intellectuals (p. 422).

Pinker is reluctant to spell out the alternative to liberalism or explicitly connect the new science findings with common sense. However, his works, along with those of his intellectual colleagues, do furnish these connections (Rose, 2000). Their writings sometimes mobilise less a grand political agenda than a psychodrama dominated by metaphors of competition and war. They reverberate a preoccupation with heterosexuality and an anxious commitment to self-serving individualism. They resolutely reject free will (agency) and adaptivity or maximising behaviours (Campbell, 2002). Individual conflict and self-serving strategies circulate throughout the various renditions of evolutionary psychology. This story, plotted in scientific reports and rehearsed in popular articles and trade books, provides the 'new science' alternative to liberalism. This alternative makes strategic use of feminist science yet remains grounded in assumptions about human kinds found in the new evolutionary theory. Not surprisingly, this tactical pastiche harbours some contradictory claims about human nature.

Sperm competition theory affords a case for examining the psychodrama of male and female difference in this modern scientific battleground of sex. Popularisations, in their necessary smoothing of scientific inconsistencies and their evocative representations of gender and sex, expose the political, moral, and common sense dimensions of the larger scientific mission to make biology the quintessential explanatory basis for comprehending human behaviour. In the popular accounts, the political trouble with 'liberalism' in general and with 'feminism' in particular is laid bare, and the fate of human relations is written as nothing more or less than hardwired desire against which extant efforts toward social reform and transformation come up short.

The story told at once is invisible to the ordinary eye and also provides a glaring stereotypic vision of gender and sexual relations. Playing on cultural memories of the sexual revolution and women's movement of the mid-twentieth century along with the nearly simultaneous scientific 'discovery' of female sexuality, the sperm competition story insists upon the inherent dis-harmony of gender relations. The narrative's central female character is borrowed from and also subverts a dominant image of the feminist female. While ever reminding readers of the newly emancipated woman of liberal feminism, this recast feminist/evolutionary female behaves somewhat differently than her rights-demanding predecessor. Her newly observed behaviours foreground not liberal notions of emancipation, rights, and welfare, but certain competitive and economic arrangements. The newly observed characteristics of males, especially when seen in context with these females, unsteady his patriarchal power and related sexual prowess. He, too, is represented as competitive and self-serving but also as anxious and vulnerable, a late twentieth century version of psychological

masculinity (Morawski, 2003). Replacing a liberal reading of the power relations of gender with one about the ultimate power of genes over all relations, and substituting a utopian vision of egalitarianism with the harsh and uncompromising rule of nature, these writings prescribe as they describe just how men and women conduct their lives together. Yet, in their very admixture of scientific paradigms of gender, these concocted biological theories additionally presume patriarchal power and determinism.

The theory: Gametes in competition

What is now called 'sperm competition theory' originated in the practical world of technoscience, originating from research seeking more efficacious ways for farmers to breed livestock. The scientific literature specifically addressing sperm competition can be said to commence with a 1929 article 'Fertilisation in Domestic Fowl' (Warren and Kilpatrick, 1929). This empirical study of the fertilisation of domestic fowl under conditions when more than one male attempts to inseminate a female found that when such double mating occurs, the last male to copulate is more often the one to fertilise; the findings suggested that this 'last male precedence' was possibly due to an interaction of the males' sperm. Several 1960s studies reported this 'last male precedence' phenomenon (Payne and Kahrs, 1961; Olivieri, Avallone, and Pica, 1970).

In the 1970s these empirical observations were incorporated into evolutionary theorising and extended to the level of molar behaviour. Research on mechanisms of sexual selection, specifically individual variation in reproductive success, located two primary selection mechanisms: male to male combat, through which winners achieved higher reproductive success, and female mate choice, through which mate preference enhanced reproductive success. Assuming that selection operated more strongly in males than females, researchers concluded that this selection pressure explained sex differences in the desire to mate. That is, given selection pressures, males are eager, active, and undiscriminating and females are discriminating, passive, and even coy. Additionally, differences in gamete size (anisogamy) were hypothesised to explain sex differences in reproductive behaviour: with few, large eggs, females needed to be more selective (coy and discriminating) in comparison to males who possess small, plentiful sperm. The idea of 'parental investment' augmented this anisogamy hypothesis to explain why females, who necessarily make substantial investments in the rearing of offspring, would choose to mate carefully and sparingly while males would actively and competitively seek mating.

Such evolutionary theorising propelled research on sperm competition and, in turn, studies extended what counts as reproductive action beyond the realm of molar behaviour of individuals to invisible sites of gametes and reproductive anatomy. G.A. Parker (1970), often referred to as the 'father' of sperm competition theory, posited that competition transpires not just through male-male combat but also after copulation, in the reproductive tract of females who had copulated with more than one male. Selection, Parker's work suggested, occurs at the level of the individual, not the population. Sexual selection does not stop at copulation. From this hypothesis came extensive research on the attributes of gametes that prepare them for post-copulatory success.

Biologists began studying the anatomical and behavioural characteristics of sperm to find evidence of factors that aid competition: sperm size and number, testes size, and sperm types, along with the frequency, order and timing of inseminations, and the presence of female orgasm, all came under theoretical and empirical scrutiny. Sperm number, for instance, is held to be indicative of species' engagement in sperm competition. Species with large sperm usually produce less sperm and are not likely to exhibit sperm competition whereas those species with small sperm usually produce more sperm and often exhibit sperm competition. Smaller sperm, it is reasoned, enable more sperm to be ejaculated, and the presence of large numbers of sperm increases the chance for fertilisation under competitive circumstances (Parker, 1982). Testes size is an additional factor in sperm competition: species with large testes produce more sperm in shorter periods than do those with small testes and, therefore, large-testes species are better equipped for sperm competition (Harcourt et al, 1981).

By the 1980s sperm competition theory was extended to account for human reproductive strategies at the individual level. In *The Origins of Human Sexuality*, R.V. Short (1980) proposed that the presence of sperm competition suggests that humans are 'polygamous', *not* 'monogamous'. He added, however, that females are more inclined toward monogamy because of their large investment in childcare while males are more inclined toward polygamy because such behaviour maximised their reproductive success. In the first empirical study of sperm competition in humans, Robin Baker and Mark Bellis (1988) investigated how the number of sperm in a human ejaculate varies in accordance with sperm competition, that is, with the perceived presence of other

males competing for reproductive success. Moller (1989) posited that sperm competition occurs in most, if not all, mammals.

On the matter of male and female sexuality, sperm competition theory overturned assumptions of male activity and female passivity, male polygamy and female monogamy. Sperm competition researchers radically reconsidered female passivity and coyness as they began recognising female characteristics of active sexuality. In addition to physiological features such as hidden orgasm and sperm capacity, features that encourage mating, females are posited to have 'choices'. Females who choose to be polygamous are said to have better chances at fertilisation as well as better genes for their offspring (Small, 1988; Curtzinger, 1991), but females ultimately have control over who fertilises them and when they choose to orgasm (Quiatt and Everett, 1982; Baker and Bellis, 1993). In advancing hypotheses about active, even aggressive female sexuality, these components of sperm competition theory share with feminist sexuality and primatology studies the very idea of active, discriminating, and interested females (Gowaty, 2003; Haraway, 1988).

Making sperm competition visible

Sperm competition theory almost instantly made its public debut, appearing in popular articles in the late 1980s. By 1993 the production of popular accounts of sperm competition exceeded in number the scientific writings on the subject. If the theory's punch was exposing the invisible forces that guided and even governed human reproductive behaviours, then the expeditious public debut of these invisible phenomena marked its success. Sperm competition was reported in newspapers and popular magazines, and with few exceptions, the accounts entailed uncritical reporting. Sperm competition was a fact, one that could be verified by identifying the functions of certain anatomical parts and re-interpreting everyday heterosexual activities – the actual sexual engagements of men and women. Two trade texts, both written by biologists researching sperm competition theory, detailed the invisible processes – gametes, body spaces, fluid productions, muscle contractions and the like – and deftly connected these processes to heterosexual relations – seduction, sex, deceit, hiding, and adultery as well as the peculiar practices of intercourse. With such claims to explain our sexual underworld through science, *Sperm Wars: The Science of Sex* (Baker, 1996) and *Promiscuity: An Evolutionary History of Sperm Competition* (Birkhead, 2000) garnered significant attention in

the media. This scientific sensationalism even earned the theory an hour-long PBS presentation. A third trade book, *A Natural History of Rape*, attends to the place of rape in sperm competition and reproductive success (Thornhill and Palmer, 2000). Yet another, *What's Love Got to Do with It?*, features sperm competition theory as an important part of love as it has evolved (Small, 1995).

These and kindred depictions of sperm competition theory offer an alternative scientific explanation of sexual difference, one whose persuasive power relies little on the presentation of complex quantitative data or fastidious experiments. Instead, the persuasive purchase resides first, on rhetorical claims about a genuine science vying gallantly against dominant liberal ideology and, second, on a captivating, even fantastic, narrative of heterosexual life. That narrative recasts the central female and male characters and reports ostensibly previously closeted events. Noting the pervasiveness of ideology in the social sciences, Thornhill and Palmer (2000) preface their scientific theory of rape by claiming that 'many rape-prevention programs developed over the last three decades relied upon explanations of rape based more on ideology than on scientific evidence' and 'on assumptions about human behaviour that have been without theoretical justification since 1859, when Charles Darwin's book *On the Origin of Species* was published' (2000, pp. xi-xii). While 'science' in these texts is more often posed against a liberalism of extending human rights, guaranteeing welfare, and regarding feminist calls for equity, sometimes 'liberal' is taken to include the sexual repression of liberal culture and a corresponding reluctance to objectively study sexuality in all its wayward forms (Birkhead, 2000, p. xi).

Juxtaposing real science and liberal ideology readies readers to consider a fantastic heterosexual story, a romance that is far more complex and intriguing than the egg and sperm romance that Emily Martin (1991) detected in scientific texts on reproduction. Gender relations, along with the genetically-determined anatomy and psychology that determine these relations, are more multi-sited, volatile, and combative than an active sperm or army of sperm seeking out a reluctant, waiting egg that Martin uncovered in science texts. The new story's cast features gametes as just one vanguard sector of a far-reaching battle. These gametes are sophisticated, diverse, psychological types that are abetted in combat by an impressively well-outfitted reproductive anatomy. In some of these scientific accounts, the plot is further complicated, even confused, by the possible participation of

apparently voluntary cognition, that is, by the possibility that men and women make conscious choices. With such conjectures about cognition, the story might signal a philosophical (and political) query about free will in the war of heterosexuality. Then again, its very confusions about the meaning of 'choice' can be interpreted in orthodox evolutionary terms as the non-choice of determinism.

The sexual war story is multifaceted. First come the invisible agents mobilising on an invisible terrain. Of these invisible agents, the male army is the more developed. Sperm number, as described earlier, is of central importance to success and survival; as Birkhead argues, 'Natural selection has eliminated those males who failed to adjust their sperm numbers in the appropriate manner' (2000, p. 129). Ascertaining the necessary number of sperm to ejaculate involves cunning calculus on the part of the male body. Human males will ejaculate more sperm based on the time they have been separated from their mate in order to counteract any possible promiscuous activity their mate might have participated in during their time apart. If the couple has been separated for one day, for instance, then the number of sperm ejaculated is going to be less then if they have been separated for a week. This ejaculate regulation implies that there is a process by which the male body recognises social events like separation time. Biologists Baker and Mark Bellis are represented in the popular literature as attributing such bodily regulation sometimes to an unconscious and sometimes to a conscious decision of the male. Similar decision-making guides masturbation. Baker holds that by anticipating a potential mate's promiscuous activities a male can, through masturbation, 'adjust the age and number of the sperm he will introduce into the potential female' and also 'adjust what proportion of those sperm will be blockers, killers, and egg-getters' (1996a, p. 79). Such causal pathways, linking anatomy, physiology, and decision making, whether conscious or not, imaginatively intimate that what is *invisible* powerfully determines the patterns of even the most intimate human relations.

As any strategist knows, victory lies not just in numbers, and sperm competition theorists informed the public of the varieties of sperm engaged in reproductive strategising. With assumed 'fact' of multiple mates, human males have evolved different sorts of sperm. For instance, 'Kamikaze sperm', at the cost of their own reproductive opportunity, clump and mobilise at crucial anatomical junctures within the female, aiming to block and chemically deactivate a competing male's sperm from insemination (Cooke, 1990). They are, writes Meredith Small, 'on a kamikaze mission to further the success of their brothers'. Baker (1996a) eventually renamed these sperm 'killer sperm': once they have identified a rival sperm, they 'jab the deadly tip of its head against the vulnerable side of its opponents head, applying a small amount of corrosive poison with each jab' (1996a, p. 44; Glick, 1996). Killers are 'svelte, athletic sperm, which roam around the reproductive tract in search of other men's sperm to destroy' (Baker, 1996b, p. 12). 'At the end of the battle, there are many pairs of dead and dying sperm, joined at the head in a terminal embrace' (p. 12). Sperm are tactically smart. According to David Jones's report in *The Guardian*, another type of sperm utilises the fact that sperm seem to be attracted to the egg's chemical smell by 'putting out false smells to put their rivals off the scent' (1991, p. 50). Other sperm, 'egg-getter sperm' also are athletic 'but with larger heads, whose role is to fertilise the egg... their mission is life, not death' (Baker, 1996b, p. 12). The battle might even involve internal army conflict: some researchers have conjectured that there are 'family planning sperm' who serve as contraception, 'programmed to destroy a man's own egg-getters', specifically under conditions of stress in the male (Baker, 1996a, p. 107). Serving as gendered warriors, sperm apparently out-think their human producers with their evolved identities that are especially suited to strategic interventions and counterattacks.

Smart sperm, however, act in conjunction with a repertoire of sexual behaviours in both human as well as non-human actors. Prominent among these behaviours is polygamy, a term used interchangeably in the popular literature with 'promiscuity' and 'infidelity'. The overriding view is that in most species monogamy is rare, polygamy common. The message: what humans once thought of as the norm, monogamy, actually is against our true nature. 'Generations of reproductive biologists assumed females to be sexually monogamous', writes Tim Birkhead, 'but it is now clear that this is wrong' (2000, p. ix). As Kate Muir asserts, 'infidelity is as natural as eating or sleeping ... No longer should monogamy be considered a distinguishing characteristic of mankind without also noting the all-too-human tendency towards extra-marital affairs and worse' (1994). Routinely emphasised is the female role in this 'natural' pattern of heterosexual relations. Throughout this inter-species story readers are reminded, 'Even in supposedly monogamous species, females will sometimes mate with more than one male' (Aldous, 1989, p. 17). The multiple-mate phenomenon is universal, notes Small, who announced that 'in spite of notions

of female fidelity and coyness, new research in animal behaviour describes females of all species, from insects to mammals, actively pursuing multiple mates' (1991, p. 52). Here the female body alone explains how 'the woman who is "unfaithful" to her husband may be behaving in a manner which is actually "faithful" to her body's urge to ensure the genetic strength and diversity of her progeny' (Holmquist, 1996, p. 6). Female infidelity, in fact, is necessary for sperm competition to occur (Burne, 2000, p. 16). Authors periodically ask female readers to more boldly assert their promiscuity by, for instance, 'campaigning for the decriminalisation of polygamy' (Ridley, 1994, C1) or by engaging 'in sex with as many men as possible during the conception period to maximise fertilisation by superior sperm' (Baker and Keir, 1998, p. 5).

Seduction and deception, too, are written largely as female behavioural tendencies. Just as the egg emits alluring chemical signals to the sperm, so females 'are running the show in many cases, actively luring males for sex' (Highfield, 1994, p. 1; Glick, 1996). Sperm competition, according to Baker, ultimately is a story about 'men's bodies forever trying to make the best of a bad hand, while women's bodies outsmart and outmanoeuvre them at almost every turn' through deception (Baker, 1996a, p. 22). Females' deceptive tricks are of three sorts: 'paternity deception', 'hidden infidelity', and 'biological deception'. Paternity deception, as Holmquist reports, hypothetically entails double tricking, since 'Women have always tricked men into thinking they were the father of children they were unrelated to, while also tricking the men who were actually the fathers into thinking that the children are not theirs' (1996, p. 6). Hidden infidelity, too, is discussed primarily in terms of women. Khan, whose journalist prose invites readers themselves to judge sperm theory, notes, 'Paradise is lost. Women led men astray ... And some believe this ignominy is still taking place. Scientists and researchers fancy that women are responsible for both infertility and infidelity' (1996, p. 12). With biological deception, women's bodies apparently collude with their will in this heterosexual deception, enabling women to hide the facts of paternity. In the end, such 'power to conceal manifests itself in diverse and unpredictable female behaviours which, in turn, produces more confusion and affords women another opportunity to test men's abilities' (Baker, 1996a).

Infidelity, seduction, promiscuity, and deception extend the sperm story from invisible agents to everyday life, adding neighbours, co-

workers, friends, and tangled relational dramas that reverberate with lies, secrets and, not surprisingly, continuous sexual encounters. Even in this unwieldy social realm, the body dictates. Women's orgasms serve not only pleasure but also mechanically regulate whose sperm is retained, whose is not. Female orgasm that occurs concurrently with or directly after the male orgasm is claimed to increase retention of semen, and retention increases the chances of insemination by that particular, well-timed ejaculate. Writing in the *Washington Post*, Matt Ridley (1994) reports data indicating that unfaithful women are more likely to have 'high retention orgasms' with their lover than their husband. Women's 'masturbatory orgasms' apparently alter the cervical environment, hindering mobility of the sperm of the regular partner (Barnard, 1994; Baker, 1996a). Women use their orgasm success as information about their sexual partner: after all, 'a skilled man has slept with more women. (These women) must have seen something attractive in him, a quality he will pass on to his sons and grandsons, thus increasing the women's chance of true reproductive success in future generations' (Mallick, 1997, C10). Copulation frequency is important but not merely, as one would suspect, to increase chances of successful insemination. Rather, frequent copulation with a partner 'makes the female reproductive system less susceptible to her partner's sperm, partly due to the dullness of the sex, which makes orgasm and thus conception less likely' (Holmquist, 1996, p. 6). Overshadowed but not forgotten in this drama of pleasure is sperm competition's initial conjecture that fertilisation is influenced by insemination order (Highfield, 1994; Small, 1991). For men, routine sex prepares sperm for warfare under conditions of female promiscuity.

Reports of copulatory strategies, of guerrilla warfare romance, enumerate the multiple modes of female choice, although they do not directly address the double meanings of 'choice'. Seduction, deception and infidelity are but a few opportunities for choice. Females also enjoy an assortment of 'cryptic choices', choices made within the reproductive tract, and one researcher listed twenty ways females control copulatory outcomes with two or more partners (Birkhead, 2000, p. 187). The very idea is daunting:

> If cryptic female choice is reality and not fantasy, and if females possess the ability to use the sperm of males differentially, this creates an interesting evolutionary scenario. It means that even after copulation males do not

have things all their own way, and each sex will be grappling for control over fertilisation: sexual conflict again (Birkhead, 2000, pp. 185–6).

Choice in these texts is an ambiguous concept that occupies some space between determinism (hardwired) and agency (intentional). In evolutionary psychology terms, choice typically is equated with 'selection', an evolutionary operation situated beyond the individual, and the idea of adaptation in present behaviours is rejected. But 'choice' also implies intentional action. Reports often operate in this space between determined and willed choice; they slide between unconscious and conscious, hardwired and wilful choice. Sometimes what appears to be voluntary cognitive decision making, for instance, choosing a handsome, broad-shouldered, narrow-waisted man, is described as governed by unconscious, programmed choice. The 'sexy son hypothesis' proposes that choosing a gorgeous mate for impregnation enhances reproductive success because 'the resulting offspring are also likely to be attractive and thus provide her with a splendid vehicle to pass on her genes' (Highfield, 1994, p. 1). Choice, it appears, is as deceptive as sexual relations themselves, controlled by the apparent fact that what is desirable for genetic purposes is not necessarily what is desired for domestic purposes (care of offspring). Yet, in reports, the determinedness of choices is blurred and even undermined by a language of willed decisions and behaviours.

Despite all the sexual action, sperm competition theatrics give scant attention to the home or nursery. Instead, the texts offer scandalous chronicles of clandestine sex, cheating wives, and orgasmic delight experienced with near strangers. No tellings, however, exceed the fantastic sex stories recounted in *Sperm Wars: The Science of Sex* (Baker, 1996a). Here one reads about a gardener's daughter who lost her virginity at fourteen to a local teenage boy and shortly afterward was impregnated by an affluent fifty-year-old (whose garden her father tended). She eventually married this older, wealthy man, living in 'comfort and luxury' (p. 121), travelling the world and having two more children. The drama does not end here in quiet contentment. Among other things, this woman was unsure who was the father of the youngest child: 'It *could* have been her partner, but it could equally have been the politician with whom she had had sex every day for a week at about the relevant time. Moreover, if he had been a month later taking her to bed, so too might have been the surgeon, a family friend who had treated her predecessor for cancer' (p. 121). When her husband died a few years later, she lived comfortably and 'was rarely without a sexual partner, and successive partners often overlapped' (p. 121). In another 'scene' (the book contains thirty-seven scenes), two couples that were long-term friends, one being infertile and the other with children, confessed their respective sexual malaise and decided to swap partners. The new sexual partners watched each other have sex, an event recounted for readers with the fine details of pubic hair and penis size, wetness, orgasm, curious positions and, of course, fertilisation success. Eventually both marriages ended although readers learn about these individuals' later promiscuity and wealth acquisition. And, of course, more fertilisation success. Other scenes tell of women literally running home after extra-marital copulation to have sex with their husbands, hoping all the while either to be impregnated by the first partner and hide the fact of paternity or to let the sperm fight it out for fertilisation success (p. 38).

Such graphic storytelling fills in the details missing in briefer reports of sperm competition, specifying the intimacies of seduction, copulation, and deception. They show readers promiscuity at its purported finest. The 'scenes' take us from false assumptions of human monogamy to polygamy, then promiscuity and infidelity; they supply plentiful sexual fantasy. Darwinism spells fantastic sex. Buff adolescent males copulating in semi-public places map evolutionary ideas about male-to-male combat and mate-selection onto semen-soaked sheets, wet-dream diaries, and hasty penetration. Cheating husbands bed cheating wives all the while seeking yet additional sexual partners beside their spouses and non-marital lovers. It all comes to fantastic sex. And in neglecting matters of childcare and domestic life generally, the accounts of sperm competition theory omit some of the evolutionary claims about women's unique attributes that have evolved for nurturing and caretaking.

Textual strategies

The battle between the sexes, or at least the metaphor of warfare, is hardly new; some even call it 'the longest war' (Tavris, 1984). Sperm competition theory relocates this gender war, changing it in significant ways. With its dramatic, sometimes fantastic narrative, popular reporting embellishes the scientific theory, as popularised science tends to do (Green, 1985). With few exceptions, the popular scientific accounts are consistent with scientific reports. Sperm competition researchers occasionally claim other researchers to be sensationalist,

even misleading, but this very contestation over scientific accuracy and sobriety actually enhances the scientific status of the entire program (Birkhead, Moore and Bedford, 1997; Birkhead, 2000; Ingram, 2000).

The theory, generously represented in public reports, re-interprets and challenges axioms of contemporary liberal thought about gender. Notably challenged in the antagonistic evolutionary drama is the location of sexual difference. Feminist accounts of how gender is constructed in and through institutional structures and practices (i.e. West and Zimmerman, 1987), family relations (i.e. Chodorow, 1978; Dinnerstein, 1977), or unconscious processes (i.e. Benjamin, 1988; Butler, 1990) are replaced with a science that locates sex (and gender) in invisible sectors of the fixed biological body. Inside the body resides not some homunculus or invisible hand but a simultaneously mechanistic and natural world intricately governed according to evolutionary law. The political implication of these biological re-situatings of gender seems clear: reform what one might of social custom and public policy, the lawful invisible world populated by many different kinds of warring agents ultimately determines the future.

The metaphor of combat, the 'competition' of sperm and bodies, might distract some readers from other notable interventions in liberalism that are made by sperm competition theory (and evolutionary psychology generally.) First, the Darwinian female who has figured in conventional psychology of women (Shields, 1975) has disappeared. Gone is the Darwinian dichotomy whereby 'Men are active, creative, and "catabolic", while women are passive, conservative, and "anabolic"' (Geddes and Thompson, 1890, p. 16). Forgotten or eliminated is the sexual selection hypothesis that evolutionary selection pressures operate more strongly in males with the resultant greater desire of men to mate. In place of a passive, sexually demur if coy female being is the post-sexual revolution, bra-burning, and contraceptive-wielding female – a sexually yearning, eager, and active female.

The female inhabiting sperm competition stories corresponds with the sexually active female recently observed in non-humans by feminist primatologists. This female *is* the feminist, or a simulacrum. The feminist, lead character in the liberal reform of gender relations, rights, and economic parity, is recast as the central character in an evolutionary sexual romance. Evolutionary sexual stories concede or appropriate claims of active female sexuality and sexual rights that were introduced through feminist primatology studies of the last three decades. Feminist primatologists have replaced notions of female receptivity with 'female choice', and passivity with activity. Feminist primatologists also developed notions of female competition and conflict, connecting them with a politics of liberal capitalism. As Donna Haraway described the work of feminist primatologist Sarah Hrdy,

> For Hrdy, the primate social group became one possible result of the strategies of individual reproducers to maximise their genetic fitness, to capitalise on their genetic investments. The social origin story of pure liberal, utilitarian political economy rules; individual competition produced all the forms of combination of the efficient animal machine. Social life was a market where investments were made and tested in the only currency that counts: genetic increase (1991, p. 99).

Liberalism and evolutionary stories converge in primatology through the rhetoric of conflict and competition of market economics. Both liberalism and this science require independent agents striving to maximise, to serve their own interests. Primatology studies by feminists stand as the suffrage movement for female primates, recording their competencies for participation in the social group.

The evolutionary female of sperm competition theory, however, is more than the feminist non-human primate or the feminist human citizen. The evolutionary female exceeds those characteristics. Her rights claiming and sexual contact with the world are not all of her ascribed qualities, and some of the other attributes might be taken to be amoral if not sinister ones. The sperm-competition female's goals either strategically deploy or go beyond the right to carnal pleasure in order to serve the ultimate ones of reproductive success. To these ends no deception, lies, secrecy, cuckolding, manipulation, or infidelity is unimaginable or unacceptable. Once again, a certain liberalism intimated in feminist science is gestured but transfigured. Once again, human females are not what they seem, they are more than they seem.

The ambiguous role of 'choice', mainly 'female choice' in the theory toys with liberal notions of rights and human agency (and in so doing, deflates ideas about social and personal improvement). Playing upon and conflating the very different meanings of choice given in evolutionary theory and in modern civil discourse, female choice might not be intentional after all. In the texts, this ambiguity of meaning of 'choice' frequently permits readers the leeway to understand choices as autonomous ones, as wilful acts, or as determined ones, as inescapable

fate. Consequently, readers are able to interpret female sexual choices as either moral or immoral ones, or even to conflate these attributions and perceive women as unintentionally choosing to be immoral. Sperm competition theory's ambiguous representation of human choice might be a strategic (maybe even a satirical) corrective to the ongoing struggles of liberal feminist social theory to reconcile agency and structure determinism. And its explanation of female sexuality, as so many choices toward successful reproduction, troubles yet another feminist problematic: the longstanding efforts to separate sex and reproduction (Lloyd, 1993).

Popularisation of sperm competition thus affords an alternative narrative of post-war liberalism and its reformulations of gender in intellectual thought, law, policy and social relations. Metaphors of antagonism and combat remind readers of the tension of gender in personal life. The texts' fantasies of sex entertain, if not arouse readers. These surface actions provide a familiar context for a revised myth in which a central character of the late twentieth century, the modern female, is re-represented. Her new representation is but significantly different. The once oppressed, newly liberated female, demanding rights in public and private life, can be appreciated once we readers can penetrate beneath the visible to see the invisible realm that only science can reveal to us. Observing that invisible realm through the keener vision of science enables us to see how the female is less rational and less moral, and possibly even less self-conscious, than has been assumed.

This female, in fact, is more like a male in several significant respects. Not passively receptive, but active. Not compliant, but assertive and even aggressive. Not obedient, but devious. In an ironic move, the female-now-looking-like-a-male in these evolutionary tales realises some feminists' emphatic calls for highlighting gender similarities, not differences. In a tactical move, these new depictions of females-now-looking-like-males subtly restructure the self-other binary that under-girds the universal 'man', the generic subject of the human sciences. Just as poststructuralists, feminists, and queer theorists have traced how 'man' is produced through a play of differences, articulated through a set of distinctions from 'others' (women, minorities, deviants), so the new evolutionary sciences appear not to stress such differences but to underscore sameness. Women and men apparently are equal players in a competitive economy, ever seeking advantage and individual gains.

Men and women alike are 'self-contained individuals' whose psyches and behavioural repertoire make them flexible, self-serving players in a competitive economy (Sampson, 1977). The choice-making, self-interested, competitive women of these evolutionary accounts strikingly resemble in certain respects the women described by feminist primatologists and feminist psychologists. These women of the evolutionary accounts might also be assumed to corroborate certain liberal worldviews. However, these emancipatory features of the female, along with the excess features ascribed by evolutionary thinking also accords with a more conservative political perspective that ascribes to humans certain intractable natural tendencies that undermine liberalism's aims. Committed sociobiologists themselves sketch connections between these newly acknowledged gender similarities and political economy:

> The politics of reproductive strategies, though rooted in human evolution, is evident in contemporary relationships. Males and females both strive to achieve reproductive success (or at least attain that which in the past led to reproductive success), but there are conflicts over how each sex can best accomplish this goal. Men and women are thus involved in a micro level political relationship as they cooperate or compete in pursuit of resources, power, and status (Liesen, 1995, p. 17).

For Laurette Liesen, both males and females are 'independent agents' (p. 18) in pursuit of their own reproductive interests. That reproductive political economy is no longer androcentric as 'socio-biology presents females as strategic and active social participants who are not necessarily destined to live in a patriarchal world' (p. 18).

Conclusion

Science has neither the first nor the last word on cultural truth. Rather, science participates in the generation and adjudication of such truth. The scientific explanations of sex/gender difference and the recent shifts in this science actually are part of (not opposed to) the liberal project and its trajectories. Feminist psychologists who have developed social and constructionist models of gender and gender differences have been aware of their engagement in the politics of liberalism. They seem to have been less attentive to the possible political implications of the discovery of biological differences (Scott, 1988). The new evolutionary psychologists, including those advancing

sperm competition theory, do not represent themselves as so politically self-aware, but they too sustain and advocate certain features of liberalism, despite positing a dichotomy between liberal ideology and science. Popularisations of their science, often authored by the scientists themselves, reveal how the stakes of scientific work connect with the political economy but fashion a human nature that as readily suits conservative politics in its portrayal of intense self-serving (and deceptive and manipulative) attributes.

Science, as science studies work has illuminated, 'is politics by other means' (Haraway, 1986). The sudden success of evolutionary psychology and the waning of social-psychological and experiential perspectives on gender difference perhaps mark key changes in North American liberalism, not its demise. Sperm competition theory, as a case in point, signals shifts in social understandings of gender, pronounces just as it circulates certain anxieties about men and women, and intimates a renewed pessimism about human kinds. 'Not so long ago' (Scott, 1999), such theories seemed to succumb to social and psychological models along with a certain attendant liberalism. The unpredicted advancement of evolutionary models makes more sense once we comprehend these evolutionary sciences' strategic appropriation of feminist cultural notions of women as active, sexual, and able to make the autonomous decisions required of citizens in liberal societies. It makes more sense, too, once we consider the parallel strategy of representing men as vulnerable, anxiously responding to women's self-interested manoeuvres.

Lacking substantive empirical and epistemic warrant, such evolutionary models nonetheless have flourished in the media and found a respectable place in the academy. Therefore, the challenge for scientists, social theorists, and activists who think otherwise about gender, or about human kinds and their social or political possibilities, resides inside and outside laboratories. Interrupting or otherwise challenging the recent evolutionary narrative of human nature will require investigating all the actors, from the neurons and the instruments designed to measure them to the fantasies of culture and the scientific stories designed to convey them.

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Migration, hope and the making of subjectivity in transnational capitalism

Ghassan Hage in conversation with Dimitris Papadopoulos

This conversation deals with Hage's conception of society as a mechanism for the production and distribution of hope. The first part emphasises the importance of examining the kind of hope distributed within each different network of production of hope, the space of distribution and the degree of equality in distribution occurring within this space. The second part examines the nature of the logic of pure (spatial and symbolic) exclusion to which refugees are subjected and how it differs from the logic of exploitation. This leads to examining the nature of citizenship today. Hage examines the rise of citizenship as a defensive form of conscription in opposition to citizenship as a form of enjoyment of the nation. Finally, the conversation examines the relationship between hope and social change. Hage defends the role of what he calls 'minor utopias' as a kind of hope 'on the side of life' aimed at fertilising the present and transforming potentialities into practical possibilities.

Keywords: hope, migration, subjectivity, citizenship, transnationalism

Papadopoulos Ghassan, in your recently published book *Against Paranoid Nationalism* (Merlin 2003) you start from the idea that societies are mechanisms for the distribution of hope and that we have to think of subjects as 'hoping subjects.' What is changing in contemporary transnational capitalism are the conditions for the distribution of