

## Introduction: feminism, bodies and biological sex

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In 1949 Simone de Beauvoir passionately described women's enslavement to what she called the 'outside forces' of their reproductive biologies. 'Woman is of all mammalian females', she wrote,

at once the one who is most profoundly alienated (her individuality the prey of outside forces), and the one who most violently resists this alienation; in no other is enslavement of the organism to reproduction more imperious or more unwillingly accepted. Crises of puberty and the menopause, monthly 'curse', long and often difficult pregnancy, painful and sometimes dangerous childbirth, illnesses, unexpected symptoms and complications – these are characteristics of the human female.

*(de Beauvoir 1988: 64)*

These crises are fundamentally linked to endocrine systems; for de Beauvoir, puberty, ovulation, menstruation, pregnancy, childbirth and menopause all demonstrate the ways in which 'the species' takes hold of women's bodies through the actions of sex hormones. Women's lives are a profound struggle against this 'imperious' process. 'Not without resistance', she argues, 'does the body of woman permit the species to take over; and this struggle is weakening and dangerous' (de Beauvoir 1988: 59). Unlike men (whose endocrine systems do not create significant crises), a woman must strive to maintain a hold on her individuality and resist her 'enslavement' to the demands of biological reproduction, which are, physiologically at least, of no benefit to her (de Beauvoir 1988: 62–4). 'Woman, like man', de Beauvoir argues with reference to the work of phenomenologist Maurice Merleau-Ponty, 'is her body; but her body is something other than herself' (de Beauvoir 1988: 61, emphasis in original). To become herself, then, a woman must resist the inherent nature of her (hormonal) body, which is to sublate her, like other mammals, to the reproduction of the species. Although her descriptions of this struggle are graphic, with the words

‘enslavement’ and ‘imperious’ figuring a desire for revolt against biological forces, de Beauvoir is adamant that hormones do not, as science writer Gail Vines (1993) puts it, ‘rule our lives’. After stating that ‘the biological facts ... are one of the keys to the understanding of woman’, she continues ‘I deny that they establish for her a fixed and inevitable destiny’ (de Beauvoir 1988: 65). For de Beauvoir, women’s subordinate role cannot be explained by biology, and indeed, as she famously contends much later in *The Second Sex*, ‘One is not born, but rather becomes, a woman’ (de Beauvoir 1988: 295).

This seeming contradiction in de Beauvoir’s position – becoming a woman is a social/cultural process but women continually struggle against the powerful forces of biology – epitomises a continuing dilemma within feminist theory. To what extent are women’s socially subordinate positions influenced by their biologies? And what are the possibilities for change or ‘struggle’ against biological ‘forces’? At the heart of this dilemma lie shifting meanings of ‘biology’ and recurrent slippages between biology as a science and biology as body or material flesh. Holding these two versions of biology apart is notoriously difficult for both scientists and social theorists. De Beauvoir, for example, despite describing the scientific knowledge of her time as ‘fact’, points out that ‘all physiologists and biologists ... ascribe meaning to vital phenomena’ and often make ‘foolhardy’ deductions from biological data about animals in explaining human society (de Beauvoir 1988: 41, 45). Since the 1970s, feminist critics of science and medicine such as Ruth Hubbard, Linda Birke and Evelyn Fox Keller, have shown that the scientific discipline of biology is demonstrably cultural and political, its assertions value-laden and reductive. But the question of how this relates to biological bodies, to biology as material flesh, remains contested. If contemporary feminists want to resist women’s ‘enslavement’ (to use de Beauvoir’s word) to their biologies, we need, arguably, to do more than analyse the discipline of biology. De Beauvoir’s assertion that there is something in the very materiality of bodies (specifically sex hormones) that plays a role in structuring women’s lives needs to be addressed.

In the last three decades, feminist thinking around biology (in both its material and disciplinary senses) and its relevance to women’s cultural and political positions has focused on the concepts of ‘sex’ and ‘gender’ in what has become known as ‘the sex/gender debate’. At the end of the twentieth century, this debate seemed to reach a stalemate, founded, arguably, on the slipperiness of ‘biology’ and a failure to bring the material and disciplinary meanings of this term together in sustainable ways. Although feminist analysts had thoroughly demonstrated the cultural nature of technoscientific and biomedical discourses of biology, questions

remained as to what to make of women's material differences from and similarities to men, and to each other. One important approach to this problem was to ask women to articulate their understandings and experiences of their bodies. Anthropologist Emily Martin's widely read book *The Woman in the Body: a cultural analysis of reproduction* (1987) does this in relation to hormonal bodies, studying women's conceptions and experiences of menstruation, birth and menopause and comparing and contrasting these with dominant biomedical representations of the same. Martin's study demonstrates vividly that women's relation to their bodies are both mediated by – and sometimes resist or subvert – biomedical understandings, which are themselves deeply culturally inflected.

Other debates within science and technology studies, anthropology and sociology address the question of the materiality of the body more directly, providing useful resources to overcome the stalemate within feminist theory. In particular, ethnographic studies of contemporary technoscientific and biomedical discourses demonstrate that understandings of 'the biological' or of 'life itself' are produced through embodied and culturally meaningful work. Anthropologist Sarah Franklin (2001b), for example, suggests in her work on Dolly the cloned sheep that the scientific work surrounding Dolly's birth and subsequent reproductive life demonstrates the ways in which understandings of biological life are forged through material practices of cellular manipulation, animal husbandry and breeding and scientific writing. Challenges to conventional understandings of the binary nature of mammalian sexual reproduction, Franklin argues, are literally embodied in Dolly's materiality through these practices. Such studies demonstrate that technoscientific and biomedical knowledges are not produced within cultural vacuums, but rather are the products of socio-material networks of practices and discourses.

It is vital that feminists develop ways of thinking about biology as materiality as well as, or in conjunction with, critiquing biology as a discipline. Today, women's bodies remain central to questions of power and freedom in ways that de Beauvoir could never have foreseen. Questions pertaining to sexual differences, reproduction and biological life have become increasingly pressing as biomedical and technoscientific discourses provide an ever-increasing array of explanations of, and interventions into, human and non-human bodies. Although many theorists have argued that these discourses are narrow and limiting, they do raise questions of significance for feminist and social theory: about what bodies are, how bodies are different to each other and how our experiences of ourselves are changed by technoscientific and biomedical discourses.

As for de Beauvoir, sex hormones remain at the heart of these questions today, and are hence the focus of this book. Since the early twentieth century, sex hormones have been understood as one of the key actors in producing human and non-human animal bodies and although far greater attention is currently paid to genes, hormones are thought to be central to the production of healthy, reproductive and sexually differentiated bodies. Indeed, in cutting-edge scientific fields such as proteomics and metabolomics, hormones are increasingly held to play key roles in bridging gaps between genes and bodies. As intermediaries or ‘messengers’ between genes and bodies, hormones feature strongly in technoscientific, biomedical *and* cultural answers to questions about sex and gender: How do foetuses develop into male and female babies? What makes boys fight and climb trees and girls play with dolls? What happens to us at puberty and where does sexual desire come from? What is a ‘biological clock’ and why do women (and not men?) have them? Figured as answers to such questions, sex hormones – like genes but in significantly different ways – are familiar features of contemporary western discourses on bodies. In everyday conversation and in cultural and media representations, sex hormones are understood as potent players in the production of human and non-human animal differences: we explain women’s emotionalities, men’s tempers and sexualities, and the reproductive desires of wild animals, our pets and ourselves, through hormones. ‘Premenstrual syndrome’ and ‘women’s moods’ prior to and during menstruation, for example, are repeatedly ascribed to the action of hormones. Men’s aggressive behaviour on the football pitch or in the stands is often understood as linked to testosterone. Indeed, particular public spaces such as sporting clubs or boardrooms are sometimes described as ‘testosterone-soaked’. Claims regarding hormones’ role in producing sexual differences and the very possibility of sexual reproduction in both humans and animals take on a more urgent character in the context of contemporary media and scientific debates over environmental oestrogens. Actors in these debates claim that hormones in the environment are changing the bodies of animals and humans with diverse effects including hastening the onset of puberty in girls and increasing infertility and reproductive-tract cancer rates across many species (see, for example, Colborn *et al.* 1996). These claims complicate understandings of hormones’ role in producing sex: whilst hormones in the body are seen as central to healthy development, hormones in the environment are increasingly understood as threats to the nature of difference and life itself. As a route into critical thinking about our ‘enslavement’ to and ‘struggle’ against reproductive biologies, then, sex hormones

provide fascinating case studies. The analyses of biomedical, technoscientific and cultural discourses undertaken in this book not only address specific hormone-related examples, but also explore discursive strategies for developing new lines of thought around biology, difference and ‘life’. These analyses are stimulated by three key areas of social theory, introduced in the following sections: feminist theories of embodiment; science and technology (STS) theorising of non-human actors; and Foucauldian histories of biology.

### **Feminist theories of embodiment**

The history of the sex/gender debate is one of radical, ground-breaking thought that retains a central relevance to feminist and social theory, as well as to broader cultural debate around biological aspects of life. Cultural contestations around the separation of nature and culture maintain a broad cultural prominence in the west today. Discussions of addiction, criminality, intelligence, personality and individual and familial social conditions (such as homelessness) continue to founder on the ‘nature/nurture’ distinction, with conservative voices claiming biological or ‘natural’ foundations for such behaviours or conditions. The sophistication of feminist thinking around sex and gender and the linked binary distinctions biology/culture and nature/nurture has much to offer these debates.

The use of the term gender to explain differences between men and women does not stem directly from feminist theory, but from North American research produced in the 1960s and 1970s by medical psychologists John Money and Anke Ehrhardt and psychiatrist Robert Stoller. This clinical research, developed to theorise differences deemed pathological, positioned biological sex as a structuring materiality that interacts with culture to produce gender. Gender, in this view, is connected directly, although not without cultural work, to sex. Gender, in other words, is the social interpretation of sexed biology. Following the work of de Beauvoir and responding to the naturalisation of gender differences inherent in this clinical view, feminists, in contrast, argued for a clearer distinction to be made between sex and gender. Feminist sociologist Ann Oakley (1972), for example, acknowledged biological differences between men and women, but argued that the significance of these was social. Commenting on the clinical evidence produced by Stoller and Money and colleagues, she wrote that ‘The consensus of opinion seems to be that . . . [biology’s] role is a minimal one, in that the biological predisposition to a

male or female gender identity (if such a condition exists) may be decisively and ineradicably overridden by cultural learning' (Oakley 1972: 170). The note of scepticism introduced in her bracketed aside indicates the moment in which Oakley, as a feminist sociologist, deviates from the clinical literature. What feminists brought to debates on the sex/gender distinction was an awareness of the *political* nature of the social production of gender and its reliance on reference to biological sex: 'Whatever biological cause there is in reality', Oakley writes in her concluding paragraph, 'however influential or insubstantial it may be, thus tends to become increasingly irrelevant and the distorted view of its importance becomes increasingly a rationalisation of what is, in fact, only prejudice' (Oakley 1972: 210). Unlike the clinicians, feminists did not view normative roles as healthy or ultimately desirable, but as behaviours that (re)produced social inequities and limitations for both women and men.<sup>1</sup>

The understanding of gender as a social interpretation of sexed biology was nonetheless ground-breaking and remains inspirational to much feminist and other thinking about the roles of social interpretations of biological differences. In the 1980s, however, a compelling criticism of this position arose, informed by radical rethinkings of psychoanalysis and poststructuralist theories. Responding to Oakley's and others' arguments, philosophers such as Moira Gatens and Elizabeth Grosz held that the body remains strongly significant in the production of gender. As Gatens (1983) argued, it matters what sort of body experiences or displays gender. Masculinity lived by a male body has very different meanings and effects to masculinity lived by a female body. The crucial part of this position that distinguished it from the clinical and sociological views of the intertwining of sex and gender was its understanding of the body as itself socially produced or inscribed. This understanding of the body, informed by rereadings of psychoanalysis in particular, rejected a view of biology as fixed and static, and instead posited terms such as 'morphology', 'the lived body' and 'the imaginary body' to emphasise that although the body was important in theorising experience, it did not dictate the content of gender (Gatens 1983, 1996; Grosz 1989, 1990, 1994). Gatens, for example, argued that the imaginary body is formed both by particular cultures and by individual histories of psychical experience:

The imaginary body is socially and historically specific in that it is constructed by: a shared language; the shared psychical significance and privileging of various zones of the body (e.g. the mouth, anus, the genitals); and the common

<sup>1</sup> See, for example, Firestone 1970; Millett 1970; Kessler and McKenna 1978.

institutional practices and discourses (e.g. medical, juridical, and educational) on and through the body.

(Gatens 1983: 152)

Positioned in between sex and gender, then, the imaginary body bridges the space between these concepts; sex and gender can no longer be seen as separable, but are also not linked in any necessary or inevitable way. Links between sex and gender are lived through the body, but are always ‘socially and historically specific’ in both intimate and cultural ways.

This understanding formed part of a groundswell of discussion of the body as culturally produced. In the 1980s historical texts about the body, especially medical and scientific ones, were examined in order to reveal the social nature of their descriptions.<sup>2</sup> Phenomenological accounts of bodily experience also emphasised the plastic and historically located nature of embodiment,<sup>3</sup> whilst psychoanalytic theorists wrote at length about the role of language and the unconscious in the production of bodies.<sup>4</sup> Michel Foucault’s historical analyses of bodies within medical, scientific and legal institutions provided innovative methods and concepts for theorising the relations between bodies, knowledge and power.<sup>5</sup> In the 1990s, however, difficulties arose in relation to these theories of the body’s cultural nature. Questions were asked as to the extent of the cultural construction of the body and about the nature of construction as a process. Although the social nature of scientific descriptions of the reproductive organs may be demonstrated (Laqueur 1992), is it possible to say how this construction constructs the flesh and blood of individual bodies? While it may be clear that phenomena such as hysterical paralysis or phantom limb indicate cultural experiences of the body (Gatens 1983; Grosz 1994), or that diet and exercise regimes produce different types of bodies (Bordo 1993; Gatens 1996: 68–9), what of less visible, microscopic body elements such as chromosomes, and indeed hormones? Are they culturally constructed? Do they exist outside of representations of them and, if so, how can we gain any access to this? If descriptions are always social, does this necessarily mean that bodies are entirely social too?

In feminist theory these questions coalesced in the late 1980s and early 1990s around the issue of essentialism and how to understand differences between the sexes. Questions about the cultural construction of the body led feminists to ask what the nature of difference actually was. If some

<sup>2</sup> See, for example, Gallagher and Laqueur 1987; Schiebinger 1989; Laqueur 1992.

<sup>3</sup> See, for example, Young 1990; Duden 1991, 1993; Bordo 1993.

<sup>4</sup> See, for example, Kristeva 1982; Irigaray 1985, 1993b; Grosz 1989; de Lauretis 1994.

<sup>5</sup> Foucault 1987, 1988, 1994, 1995.



difference was to be claimed between men and women in terms of embodiment, what did this rely on? Was some sort of biological claim being made (thereby making the argument essentialist) or, on the other hand, was an impossibly flexible body being posited in which all differences were social and changeable? These debates caused a crisis in feminist theory as they led to the questioning of the status of the category 'women' itself. If there was no essential (biological or otherwise) commonality between women, could they be considered a group? These debates were also fuelled by the research and political interventions of Black and anti-racist feminists and lesbian and queer theorists who criticised the racist and heterosexist understandings of the term 'women' prevalent in much feminist theory.<sup>6</sup>

The strengthening and reworking of the term 'gender' has been one major response to this dilemma. Central to this response is the work of Judith Butler and the various interpretations of it made by queer and feminist theorists. The 1990 publication of *Gender Trouble* and the development of its argument in *Bodies that Matter* (1993) and *Undoing Gender* (2004) have had an enormous impact on the status of the word 'gender' and its relation to 'sex' and 'the body'. In all these books Butler makes a complex argument about the cultural production of both gender and sex and how this creates what we understand to be sexed embodiment. She argues that the construction of gendered and sexed experience takes place through a lifetime of repeated performative acts. For Butler, neither sex nor gender is 'natural': both are produced as effects of iterated actions that are culturally intelligible. She argues that the prevalent conceptualisation of two 'natural' sexes is produced through the operation of gender to read as if the operation works in the opposite direction (that gender stems from sex). Sex and sexed bodies, in other words, materialise through the operation of gender, an operation that is itself obscured.

The notion of repeated performative acts constituting gender is not about willed action; Butler wants to capture some of the relative inescapability of culturally produced gender (Butler 1993: 12–16, 94–5; 1994). Gender, she argues, is produced within particular cultural constraints – a 'matrix of schemas' – that although not fixed throughout time, are not easy to resist. In fact, she argues, these constraints are *necessary* to the production of gender: the performative acts constituting gender cannot be understood outside the constrained repetition of cultural norms and conventions (Butler 1993: 94–5). Developing Foucault's thesis in the *History of*

<sup>6</sup> See, for example, Riley 1988; hooks 1990; Sedgwick 1991; Butler 1993; Gunew and Yeatman 1993; Hammonds 1994; Rubin 1994; Wiegman 1995.



*Sexuality: an introduction* regarding the operation of power through the establishment of norms, Butler writes:

‘Sex’ is always produced as a reiteration of hegemonic norms. This productive reiteration can be read as a kind of performativity . . . [H]owever, this productive capacity of discourses is derivative, a form of cultural iterability, a practice of resignification, not a creation ex nihilo . . . [P]erformatives constitute a locus of discursive production. No ‘act’ apart from a regularized and sanctioned practice can wield the power to produce that which it declares. Indeed, a performative act apart from a reiterated and hence sanctioned set of conventions can appear only as vain effort to produce effects that it cannot possibly produce.

(Butler 1993: 107, *emphasis in original*)

The norms of gender, in other words, constitute limits to culturally intelligible actions and existence. When people act in ways that do not reproduce norms they ‘risk internment and imprisonment’, are liable to be subjected to violence and to become ‘criminalized and pathologized’ (Butler 2004: 30). Indeed, in her most recent work Butler argues that these norms of gender have significance for the most basic level of existence: ‘The normative aspiration at work here has to do with the ability to live and breathe and move’ (Butler 2004: 31).

For Butler, then, norms *materialise* bodies and sex. As an alternative to essentialism or the positing of a stable or basic matter (sex or biology), which is then worked on by culture (gender), Butler proposes ‘a return to the notion of matter, not as a site or surface, but as a *process of materialization that stabilizes over time to produce the effect of boundary, fixity, and surface we call matter*’ (Butler 1993: 9, *emphasis in original*). In this concept of materialisation Butler refuses a linguistic monism that posits all materiality as an effect of language, relying instead on a Foucauldian notion of the productive nature of regulatory power. Despite this, she stresses her desire to refuse any ‘concession’ to the materiality of the body, or the undeniability of the differences between the sexes (although she says that when questioned she inevitably makes such concessions), because she believes there can be no access to materiality except through language or discourse. It is important to note here, however, that Butler argues that this statement is different from suggesting that discourse is responsible for the creation of everything or ‘that it originates, causes, or exhaustively composes that which it concedes’ (Butler 1993: 10). It is to claim, rather, that ‘There is no reference to a pure body which is not at the same time a further formation of that body’ (Butler 1993: 10).

Despite the convincing nature of these arguments, the *extent* of this materialisation of sex and the body remains unclear. As philosopher Pheng Cheah (1996) argues, Butler ends up making a distinction between the

production or materialisation of the outlines or boundaries of the body and the production of the actual materiality of biological processes. Although Butler emphasises the role of language in the production of what she calls the morphological body, she *is* forced to make some concession regarding biological processes such as endocrinological systems. Whilst it is clear that discourse shapes our understanding of and relation to these processes, it is another thing to argue that discourse or the repetition of norms *produces* them. As Butler writes:

Here the materiality of the body ought not to be conceptualised as a unilateral or causal *effect* of the psyche in any sense that would reduce that materiality to the psyche or make of the psyche the monistic stuff out of which that materiality is produced and/or derived. This latter alternative would constitute a clearly untenable form of idealism. It must be possible to concede and affirm an array of ‘materialities’ that pertain to the body, that which is signified by the domains of biology, anatomy, physiology, hormonal and chemical composition, illness, weight, metabolism, life and death. None of this can be denied.

(Butler 1993: 66)

However, as discussed above, Butler argues convincingly that there can be no access to this materiality unstructured by cultural discourses (especially those around sexual difference) and that these materialities can therefore never be used as unadulterated grounds for political claims. That materialities cannot be denied does not mean, she maintains, that they can ever simply be affirmed:

But the undeniability of these ‘materialities’ in no way implies what it means to affirm them, indeed, what interpretive matrices condition, enable and limit that necessary affirmation. That each of these categories have a history and a historicity, that each of them is constituted through the boundary lines that distinguish them and, hence, by what they exclude, that relations of discourse and power produce hierarchies and overlappings among them and challenge those boundaries, implies that these are *both* persistent and contested regions.

(Butler 1993: 67, *emphasis in original*)

Whilst this distinction between affirmation and the impossibility of denial is small, it is nonetheless theoretically significant. It provides a route into addressing the distinction raised earlier between biology as a discipline and as materiality. Although, following Butler, we cannot approach materiality in any direct way, it does not therefore become necessary to deny that biological actors exist and may have effects.<sup>7</sup>

<sup>7</sup> Despite these comments, Cheah (1996) convincingly argues that Butler tends to focus in *Gender Trouble* and *Bodies That Matter* on social and psychical rather than biological