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INTERSPECIES REPRODUCTION:
XENOGENIC DESIRE AND THE
FEMINIST IMPLICATIONS OF
HYBRIDS

Abstract

This article explores the image of interspecies reproduction, arguably the most disturbing of the range of contemporary images of reproductive technology, as both a metaphor of some historical standing and as a new, and troubling, medical/scientific capability. Moving from the 1994 report of the Human Embryo Research Panel of the NIH, also known as the Muller Panel, through a range of sites – natural history, popular science writing, social critique, fiction, feminist theory and science studies – the article explores the context in which our current scientific perspective on interspecies reproduction is constructed. The study demonstrates the value of contextualizing – both in terms of history and literature – even the most seemingly transparent scientific or medical intervention, in order to achieve the fullest understanding of its implications. A concluding consideration of the philosophical/theoretical construction of interspecies reproduction in the present (postmodern) moment explores its implications for our understanding of the feminist critique of science.

Keywords

xenogenesis; hybridity; reproduction; embryo; modernity; postmodernity

Reproduction has become the prime strategic question, a privileged trope for logics of investment and expansion in late capitalism, and the site of discourses about the limits and promises of the self as individual.

(Haraway, 1989)

IN 1984, the British Government's *Warnock Report on Human Fertilization and Embryology*, while observing that 'trans-species fertilisation' was a routine part of infertility treatment, acknowledged that 'the hamster tests and the possibility of other trans-species fertilisations, carried out either diagnostically or as part of a research project, have caused public concern about the prospect of developing hybrid half-human creatures'.¹ Therefore, the Warnock Committee proposed regulations that would prevent such an interspecies embryo from being gestated or brought to term.

We recommend that where trans-species fertilisation is used as part of a recognized program for alleviating infertility or in the assessment or diagnosis of subfertility it should be subject to license and that a condition of granting any such license should be that the development of any resultant hybrid should be terminated at the two cell stage.

(p. 71)

Ten years later, in September 1994, the United States government's NIH report of the Human Embryo Research Panel recommended a similar act of prohibition, deeming as 'research considered unacceptable for federal funding' the 'development of human-nonhuman . . . chimeras with or without transfer', the 'cross-species fertilization except for clinical tests of the ability of sperm to penetrate eggs', and the 'attempted transfer of human embryos in nonhuman animals for gestation'.²

Something very interesting is going on here. In two government documents, hand-picked committees comprised of scientists and members of the educated lay community are agreeing on a position that seems contradictory: first, that interspecies fertilization exists and indeed is sanctioned as a crucial part of contemporary reproductive technology and infertility treatment, and second, that interspecies reproduction is unacceptable and unworthy of federal funding, and that it should be against the law to bring interspecies hybrids to term. How do we explain this double move to approve or sanction, and then to prohibit? It seems more than merely a scientific qualification or a manoeuvre designed to calm public concerns. Rather, it brings to mind Freud's 1925 essay, 'Negation', in which he observes that 'the subject-matter of a repressed image or thought can make its way into consciousness on condition that it is denied'.³ The parallel to Freud's analysis of the function of negation suggests that these government panels are doing cultural and psychic, as well as governmental and scientific work. Invoking interspecies pregnancy in order to deny (outlaw) it, the Warnock

Committee and the NIH Human Embryo Research Panel may be seen as satisfying a desire: putting into circulation the very same (repressed) cultural image that they propose to legislate against.

This article will explore the image of interspecies reproduction, arguably the most disturbing of the range of contemporary images of reproductive technology, as both a metaphor of some historical standing and as a new, and to many, troubling, medical/scientific fact. I begin with the Muller Panel's position on interspecies reproduction, because it can suggest some of the cultural formations within which the panel came into being, and to which it is inevitably responding in its treatment of interspecies reproduction. I will trace some of the embedded meanings of the image through a range of sites – natural history, popular science writing, social critique, fiction, feminist theory, and science studies – in order to provide a sense of the context within which our current scientific perspective on interspecies reproduction is constructed. In so doing, I hope to demonstrate the value of contextualizing – both in terms of history and literature – even the most seemingly transparent scientific or medical intervention, in order to achieve the fullest understanding of its implications. Then, having moved from the scientific and governmental to the cultural and more specifically literary, I will consider one final site: the philosophical/theoretical construction of interspecies reproduction in the present (postmodern) moment, which has important implications for our understanding of the feminist critique of science.

Cross-species fertilization in contemporary government reports

The Human Embryo Research Panel, also known as the Muller Panel after its chair, Stephen Muller, devoted nearly five single-spaced pages to the question of cross-species fertilization as part of human embryo research. The panel begins – as did the Warnock Committee – by acknowledging the routine acceptance of one sort of cross-species fertilization:

Fertilization of hamster eggs with human sperm is widely used in infertility clinics as a test for the fertilization competence of sperm. These eggs are used to test the competence of a particular patient's sperm to penetrate an egg. However, the fertilized eggs are not permitted to develop, nor is it likely that they would do so, due to the wide evolutionary distance between the two species. Thus the process has a clearly defined end point.

(p. 42)

While the human–hamster embryo has a reassuring end point produced by the very different morphologies of the two species, the Muller Panel observes that other kinds of chimeric embryos would have no such automatic conclusion:

because of the close evolutionary relationship between humans and some primates, for example chimpanzees, it is theoretically possible that human eggs fertilized with chimpanzee sperm might develop, at least to 14 days. Such cross-species fertilization would be unacceptable.

(p. 42)

The Muller Panel elaborates on why such xenogenetic – or interspecies – activities are not recommended for federal funding:

It is theoretically possible to make chimeras between human embryos and closely related primates, such as chimpanzees but . . . the fetus would have cells derived from both species in all tissues. In other words, it might be possible for the chimeric fetus to have large parts of the brain and/or gonads derived mostly from primate cells and other parts of the body derived mostly from human cells, a situation that would, from both a medical and ethical standpoint, be totally unacceptable.

(p. 43)

A later paragraph, from a section on ‘Development of human–nonhuman and human–human chimeras with or without transfer’, elaborates on the panel’s reason for ‘unanimously oppos[ing], on ethical and scientific grounds, the creation of heterologous, or human–nonhuman chimeras, with or without transfer’: ‘any resulting chimera would be a mixture of both cell types in all tissues, including the brain and the gonads’ (p. 95).

In its overdetermined attention to the brain and/or gonads as a site that must be protected from hybridity and kept pure from any intermixture of cell types, the Muller Panel’s argument seems to reveal a concern that is less scientific than cultural. Language in a later section of the Muller report, concerning ‘Attempted transfer of human embryos in nonhuman animals for gestation’, confirms that suspicion (p. 96). Discussing the possibility of gestating human foetuses in non-human animals, a possibility that received serious and extended treatment in a 1929 text and which I will discuss in a later section, the Muller Panel ‘overwhelmingly concluded to prohibit such research on the basis of scientific invalidity and moral opposition’ (p. 96). Not only does the passage reveal an attention (uncharacteristic for governmental or scientific writings) to maternal–foetal interactions and the mother–infant bond (experiences often discounted when reproductive technology is being discussed), but the language is surcharged with intensity, unusual for both government and scientific discourse.

There is every reason to believe that a human embryo would be immunologically rejected after transfer into another species, or, at least, that maternal–fetal placental interactions would be profoundly affected. . . . Studies of human gestation confirm the importance of maternal–fetal interactions

during pregnancy. These are crucial not only for physiological development, but they also represent the beginnings of mother–child bonding and of human relationship. *The Panel finds it repugnant to experiment with such relating between a human fetus and a nonhuman gestational mother.*

(p. 96; my emphasis)

As these passages reveal, the scientific image of interspecies reproduction catalyses complex emotions. The two acts which the Muller Panel advised prohibiting – the creation and transfer of chimeric embryos and the gestation of human foetuses in non-human animals – are both aspects of interspecies reproduction. As such, they are also shadowed by the mixture of overdetermined cultural meanings elicited by this (potential) scientific practice, which forms the conscious or unconscious context for any discussion of interspecies reproduction. The first act – the creation of chimeric or hybrid embryos – recalls the discourse of race from the seventeenth through to the nineteenth century, while the second issue – the gestation of human foetuses in non-human animals – revisits a powerful site of modernist controversy over race and gender.

Hybridity and the anxiety of race and species

What is the context for the Muller Panel's anxiety about the creation and transfer of chimeric embryos? In particular, what might be the origins of its curious obsession with the notion of gonads and brains in which both human and non-human cells were mixed? We can look to racial theories of the seventeenth, eighteenth and nineteenth centuries for an answer: such theories inevitably mingled race and species because of the preoccupation with issues of origin and hierarchy, often imaged as a 'chain of being' on which the species, and the races, were arranged in hierarchical order. Species discourse, like racial discourse, was a rich site of cultural construction. Seventeenth- and eighteenth-century naturalists toyed with the notions of apes becoming human, and speculated on the intellectual and biological issue of ape–human sexual encounters, finding them a productive source of social satire and critique.⁴ The European discovery of the great apes in the seventeenth and eighteenth centuries spawned numerous stories about ape–human hybrids, according to Londa Schiebinger, among them a nineteenth-century rumour that scientists had travelled from France to Africa to 'experiment with breeding a male orangutan and an African woman'.⁵ 'Many naturalists assert[ed] that women of Africa and Asia "mixed" voluntarily or through force with male apes, and that the products of these unions had entered into both species' (p. 98). Rousseau even went so far as to suggest that a cross-breeding experiment could answer the question of whether or not apes were human: if the issue was fertile, his argument went, the apes' humanity would be demonstrated (p. 98).

Interest in hybridity increased in the nineteenth century, when it became 'a key issue for cultural debate', according to historian Robert Young.⁶ Preoccupied by the question of monogenesis or polygenesis – whether the human race issued from a single origin or from several different 'species' – mid-nineteenth-century thinkers found hybridity to be a useful term to express the anxieties produced, and articulated, by an evolutionary model that arranged not only species, but the races of humankind, hierarchically. The Victorian discourse of race expressed the enmeshed cathexis of inter-racial and interspecies transgression in texts portraying the Great Chain of Being, in which 'predictably the African was placed at the bottom of the human family, next to the ape, and there was some discussion as to whether the African should be categorized as belonging to the species of the ape or of the human' (Young, 1995, pp. 6–7). The definitive test for whether or not organisms were of the same species was whether they could successfully produce fertile offspring; if their offspring were fertile, the parents were judged to be of the same species. 'The dispute over hybridity thus put the question of inter-racial sex at the heart of Victorian race theory', Robert Young has observed (p. 102). Hybridity served as a powerful site of cultural construction, connected to issues of both racial and species origins, according to Young, 'because the claim that humans were one or several species (and thus equal or unequal, same or different) stood or fell over the question of hybridity, that is, intra-racial fertility' (p. 9). In the nineteenth century, then, the term hybridity expressed mingled attraction and repulsion. Laden with an implicit racial as well as heterosexual ideology, the term imports into contemporary theory the unacknowledged trace of that racist past.⁷ 'Racial theory, which ostensibly seeks to keep races forever apart, transmutes into expressions of the clandestine, furtive forms of what can be called "colonial desire": a covert but insistent obsession with transgressive, inter-racial sex, hybridity and miscegenation.'⁸

Just as the boundary-constructing concept of race is overshadowed by a desire to transgress those racial boundaries, so too the taxonomic impulse that has given us the concept of species has, as its transgressive underside, the impulse to cross species boundaries. We can modify Robert Young's formulation of 'colonial desire' to theorize the existence of what we might call 'xenogenic desire' – a covert but insistent obsession with transgressive, interspecies sex, hybridity, and interspecies reproduction or xenogenesis.⁹ Literature is one of the most powerful sites of the articulation of desire, precisely because – functioning like Freud's concept of 'negation' – literature can give expression to desire while simultaneously deauthorizing it as 'only fiction'. The articulation, construction and production of xenogenic desire – the fear/wish of interspecies reproduction – differs in relation to the changing construction of the subject in modern and postmodern literature, as I will sketch by moving through a number of literary texts, first modern and then postmodern. In the modern texts, three different representations of interspecies pregnancy reflect the changing scientific construction of the human body and subject during modernity: the surgical, the

reproductive technological, and finally the genetic. With the postmodern move to the affirmation of differences and the decentred subject, xenogenic desire takes on a new, positive construction. However, here too, the specific meaning of the image varies with the ideological agenda of the context, whether feminist postmodern or non-feminist 'amodern', and with the particular notion of reproduction being deployed.

Modern narratives of hybridity: from Frankenstein's monster to the fifth child

Mary Shelley's monster is an interspecies hybrid, pieced together in Victor Frankenstein's 'workshop of filthy creation' out of materials stolen from 'the dissecting room and the slaughter-house' (p. 39). As such, he functions as a point of origin for the negative literary image of xenogenic desire, although the image of the hybrid and the chimera extend back to Greek and Roman mythology. In its doomed fantasy of having 'a new species bless [Victor Frankenstein] as its creator and source' and in its preoccupation with the possibility that the monster might find a mate and breed 'a race of devils', *Frankenstein* establishes two major themes for literary treatment of interspecies reproduction in the modern era: devolutionary anxiety linked to a hierarchized racial taxonomy, and a proto-modernist notion of a tempting but dangerous scientific intervention enabling human perfectibility (pp. 39, 150).

We can trace through a range of turn-of-the-century and early twentieth-century British literary and philosophical texts the theme of hybridity, and its foundational emotions in modernity: anxiety over racial and species degeneration and an attraction to racial and species boundary crossing. In each of these texts, the notion of interspecies reproduction is linked to a fantasy of scientific control of reproduction, either to perfect the species or to annex abilities to one species that are customarily possessed by another. H.G. Wells' *The Island of Dr. Moreau* (1896) is perhaps the most powerful image of a surgical xenogenesis. The vivisectionist Dr Moreau, trained in London but now isolated on a remote Pacific island, surgically constructs Beast People, hybrids of human and animal species, in order to test the same human/animal boundary that preoccupied naturalists in the two centuries before. Moreau's explanation of his surgical creations combines racist and what we might call species-ist discourse:

I took a gorilla I had, and upon that, working with infinite care, and mastering difficulty after difficulty, I made my first man. All the week, night and day, I molded him. With him it was chiefly the brain that needed molding; much had to be added, much changed. I thought him a fair specimen of the negroid type when I had done him, and he lay bandaged, bound, and motionless before me.¹⁰

While Wells used vivisection as his point of entry to the Victorian debate over the boundaries of race and species and the origin of humanity, writers in the early twentieth century were more likely to find their point of entry in the notion of scientifically controlled reproduction. Thus they turned to the second technique for interspecies reproduction that the Muller Panel invokes and prohibits, in that powerful double move of negation and the gratification of desire: the idea of gestating a human foetus in a non-human uterus. J.B.S. Haldane's celebrated discussion of extra-uterine gestation in *Daedalus, or Science and the Future* (1923) prompted Nietzschean philosopher Anthony Ludovici to respond with his own image of interspecies extra-uterine gestation: a human foetus gestating in 'a cow or an ass' (p. 92). Unlike Wells' scathing portrait of the human drive to improve nature through science, Ludovici's image of human-animal hybridity expressed sexist and racist anxieties through the metaphor of human devolution:

Science already suspects that vital fluids are not specific, and it is probable, therefore, that in the early days of extra-corporeal gestation, the fertilized human ovum will be transferred to the uterus of a cow or an ass, and left to mature as a parasite on the animal's tissues, very much as the newborn baby is now made the parasite of the cow's udder. And with this innovation, we shall probably suffer increased besotment, and intensified bovinity or asininity, according to the nature of the quadruped chosen. Thus extra-corporeal gestation, or 'ectogenesis' (to use a word coined by Mr. J.B.S. Haldane for the purpose) will become a possibility, and the Feminist ideal of complete emancipation from the thralldom of sex will be realized.

(p. 92)

Lysistrata, or Woman's Future and Future Woman was philosopher and translator of Nietzsche Anthony Ludovici's contribution to the 'To-day and tomorrow series', a curious set of futurological tracts published in London in the 1920s. The volume warns that the increasing artificiality of modern life threatens masculinity and high culture in the name of a feminized, feminist mass culture. Ludovici's remarkable paranoid fantasy that feminists would seize on interspecies methods of reproduction to gain emancipation from reproductive service to the species is a rare modern prefiguration of the postmodern trend I will discuss later: the affirmative view of interspecies reproduction as positive and emancipatory, rather than negative and devolutionary.

Two final texts can round out the picture of modernist visions of interspecies reproduction. Five years after Ludovici's anxious fantasy of a feminist escape from childbearing, Aldous Huxley gave us the Taylorized reproductive factory in *Brave New World* (1932), where babies are mass-produced *in vitro*, tailored to job specifications, and the term 'mother' has become an obscenity. About thirty years later, Roald Dahl's macabre little short story 'Royal Jelly' picks up this theme of modern science improving the human body, to tell the tale of the (aptly named)

Albert Taylor, a devout reader of the *American Bee Journal*, whose interest in scientific strategies for improving the human takes a grotesque turn.¹¹ In an ironic nod to Gregor Samsa, Dahl's description of Albert gives us a hybrid that is not human-animal, but human-insect, even to the loving eyes of his wife:

Looking at him now as he buzzed around in front of the bookcase with his bristly head and his hairy face and his plump pulpy body, she couldn't help thinking that somehow, in some curious way, there was a touch of the bee about this man. She had often seen women grow to look like the horses that they rode, and she had noticed that people who bred birds or bull terriers or pomeranians frequently resembled in some small but startling manner the creature of their choice. But up until now it had never occurred to her that her husband might look like a bee. It shocked her a bit.

(p. 122)

Adapting research on rat reproductive capacities to his own fertility problem, Albert has been taking massive doses of royal jelly – doses which, the story makes clear, have enabled him finally to impregnate his wife. When his precious newborn daughter seems to be ailing, Albert – inspired by his lifelong hobby of amateur bee-keeping – decides to feed his little girl the 'wonderful substance called royal jelly', which in the hive is given undiluted to those larvae 'which are destined to become queens' (p. 107). With classic Dahl mordancy, the story includes an ironic version of a set piece of such tales of hybrid birth: a scene in which the monstrous, scientifically engineered baby is seen through her horrified mother's eyes:

The woman's eyes travelled slowly downward and settled on the baby. The baby was lying naked on the table, fat and white and comatose, like some gigantic grub that was approaching the end of its larval life and would soon emerge into the world complete with mandibles and wings.

'Why don't you cover her up, Mabel,' he said. 'We don't want our little queen to catch a cold.'

(p. 130)

The royal jelly has enabled the scientist-hobbyist-father to produce his own little queen, displacing the bewildered woman who was once the mother. Dahl's story, like the stories of scientific tinkering with reproduction before it (from *Frankenstein* to *Dr. Moreau* to *Brave New World*) portrays a new-born produced with no help from women, and from which women are pointedly, uncomprehendingly, distanced.

One final modernist text of interspecies reproduction is Doris Lessing's *The Fifth Child*, a novel published in 1988 but suffused with modernist concerns. Lessing's novel expresses both the masculinist anxiety at social and biological

devolution articulated earlier in Anthony Ludovici's connection between 'increased besotment' and feminism and the image of a mother's horrified response to her hybrid child, merging them in a disturbing fantasy of mothering a monstrous devolved child. Lessing's heroine, Harriet Lovatt, finds herself pregnant with a monstrously alien foetus:

Phantoms and chimeras inhabited her brain. She would think, When the scientists make experiments, welding two kinds of animal together, of different sizes, then I suppose this is what the poor mother feels. She imagined pathetic botched creatures, horribly real to her, the products of a Great Dane or a borzoi with a little spaniel; a lion and a dog; a great cart horse and a little donkey; a tiger and a goat.

(Lessing, 1988: 41)

After a horrific pregnancy, Harriet gives birth to a baby whose 'forehead sloped from his eyebrows to his crown', a description recalling the racist craniology of Petrus Camper, with its central notion of the 'facial angle', a measurement that could be used to differentiate the ape from human beings of different races. (Lessing, 1988: 48–9, Schiebinger, 1993: 150). Londa Schiebinger argues that this concept of the facial angle was the 'central visual icon of all subsequent racism: a hierarchy of skulls passing progressively from lowliest ape and Negro to loftiest Greek' (p. 150). Although it shares the racial subtext of nineteenth- and early twentieth-century tales of interspecies reproduction, this story of the birth of a Neanderthal baby, to a woman whose rejection of feminism makes her seem a throw-back herself to an earlier time of female submissiveness and traditional values, is not a cautionary tale of scientific power gone wrong. Ben, the uncanny child with the beetling brow and the bruising manner, is not the engineered product of an ape and a human; no Moreau or Frankenstein has produced him. Rather, as Lessing imagines him, he is simply a genetic accident – the unexplained re-emergence of that missing link between contemporary humans and the apes that were our ancestors.

She felt she was looking, through him, at a race that reached its apex thousands and thousands of years before humanity, whatever that meant, took this stage. 'Did Ben's people live in caves underground while the ice age ground overhead, eating fish from dark subterranean rivers, or sneaking up into the bitter snow to snare a bear, or a bird – or even people, her (Harriet's) ancestors? Did his people rape the females of humanity's forebears? Thus making new races, which had flourished and departed, but perhaps had left their seeds in the human matrix, here and there, to appear again, as Ben had?

(p. 130)

In this scene of the alienated mother gazing at the hybrid child, Lessing's disturbing novel recapitulates the familiar seventeenth- and eighteenth-century racist fantasy of an interspecies rape as a racial origin. Yet unlike its predecessors, *Frankenstein*, *The Island of Dr. Moreau*, and even 'Royal Jelly', which moved from the fantasy to a notion of eugenic power and control, Lessing's novel provides us with virtually no control over hybridity. The act of interspecies reproduction that produces the hybrid is not a contemporary transgression (whether surgical, reproductive technological, or genetic) but rather an event in the far distant past. No act of scientific, technological or medical abstinence can guarantee freedom from the eruption of disturbing hybrids.

From modernist fear of hybrids to postmodern fascination

[T]he monstrous fear and hope that the child will not, after all, be like the parent.

(Haraway, 1989)

In the arc from *Frankenstein* to *The Fifth Child*, we can see the hopes and fears articulated by the modern strand of the narrative of interspecies reproduction: the eugenic aspiration to control the development of the species through scientific intervention into reproduction, with its foundational preoccupations with the boundaries of race and species, and the repressed fantasy of transgressing those very same racial and species boundaries through interspecies reproduction, or xenogenesis. Yet if Frankenstein's monster, Albert Taylor's little queen bee and the Lovatts' Neanderthal child Ben all express the horrified attraction to interspecies reproduction, another novel published seven years before Lessing's modernist parable articulates a feminist vision of interspecies reproduction closer to postmodernism, using xenogenesis as the platform on which to stage a critique of the Enlightenment subject of science.

Maureen Duffy's *Gor Saga* (1981) concerns the life of Gordon Bardfield, the 'hominid' result of the *in-vitro* fertilization of chimpanzee mother Mary by the evil scientist father Forester, director of the primate section of an institute linked to the Ministry of Defence. *Gor Saga* broadens the implications of hybridity, for Gor's physique marks him not only by race, but by class: he is thought to be one of the 'nons', the working-class group whose cultural illiteracy is understood to place them closer to the apes. Recalling seventeenth- and eighteenth-century stories on educating an ape as a gentleman, the *Gor Saga* traces the construction of the 'hominid' Gor as the middle-class young man, Gordon. Boarded with human foster-parents during his infancy, Gordon is provided with throat surgery so that he can speak, and then sent to a middle-class boarding school run on a military model. All signs point to a successful transition to bourgeois adult life,

when puberty disrupts the experiment. 'As in *Frankenstein*,' Jenny Newman has observed, 'it is the monster's nascent sexuality that provokes the major crisis.'¹² However, unlike Frankenstein's monster's demand for a mate which, when unmet, unleashes murderous rage, Gor's mis-step – kissing the young girl who is, unbeknown to him, his half-sister – seems less a monstrous transgression than a bit of teenage exuberance. None the less, Gor's scientist father decides his little experiment is over, and chases Gor with murderous intent. Gor hides himself among the 'urban guerrillas' (the pun is intended by Duffy) who have built a secret collectivity in the waste towns. From that hideout he investigates his origins until – upon learning the truth – he must choose between suicide and self-acceptance. The latter wins; helping his fellow outsiders to battle against the repressive forces of the army who would destroy their nascent off-grid communities in the name of a homogenized commodity culture, Gor finds himself crowned king of the day for his brave service to the new hybrid community.

Frankenstein, Dr. Moreau, 'Royal Jelly' and *The Fifth Child* all portray the xenogenic birth as a tragedy at best, and an abomination at worst, to the autonomous human subject. Despite the painful testimony of Frankenstein's monster, the litany of Moreau's 'beast people' and the alien buzzing or howling of the little queen and of Ben Lovatt, the hybrid beings imagined by Shelley, Wells, Dahl and Lessing are portrayed more often as alien objects of scientific intervention than they are as speaking subjects. In contrast, in its openness to a decentred, xenogenic subject, Duffy's novel represents an important shift; we experience fully half the novel through Gor's eyes, and by the conclusion it is Gor's perceptions, rather than those of the government or religion, that are affirmed. Duffy's novel subjectifies the hybrid, giving us the perspective of the hominid, whose community embraces him, and rejecting the perspective of the male scientist who created him out of a perverse desire for instrumental mastery.

Although in its realistic narrative strategies *Gor Saga* is far from the self-reflexive pastiche characteristic of much postmodern fiction, in its affirmation of a hybrid subjectivity it anticipates one of the most prominent postmodern celebrations of interspecies reproduction, Donna Haraway's *Primate Visions*. Haraway's study of the discipline of twentieth-century primatology examines the ways that as human beings we inscribe our changing self-constructions and subjectivities on the primates we study. Affirming interspecies reproduction in a casual aside, in its main argument Haraway's study embraces hybridity as a route to increased communication and community:

Primate Visions does not work by prohibiting origin stories, or biological explanations of what some would insist must be exclusively cultural matters, or any other of the enabling devices among primate discourses' apparatuses of bodily production. I am not interested in policing the boundaries between nature and culture – quite the opposite, I am edified by the

traffic. Indeed, I have always preferred the prospect of pregnancy with the embryo of another species.

(Haraway, 1989: 377)

If Donna Haraway embraces the hybrid in the name of feminist communication, sociologist of science Bruno Latour does so not in the name of feminism but in the name of a retheorized modernity. In *We Have Never Been Modern* (1994), Latour argues that modernity itself has been formed through a dual process of sanction and prohibition bearing a certain resemblance to Freud's analysis of the process of negation, discussed in the opening section of this article. Latour attributes our current proliferation of hybrids to the modernist act of purification: the separation of human from non-human, nature from culture, and all of the binary oppositions that follow from that.¹³ Such acts of purification paradoxically result in the continued production of hybrids, Latour argues. If we wish to ratify, rather than deny, the place of hybrids in contemporary life, we must renegotiate the implicit agreements for perceiving the self and the world that he dubs 'the modern constitution'. Advocating that we 'rethink the definition of modernity, interpret the symptom of postmodernity, and understand why we are no longer committed heart and soul to the double task of domination and emancipation', he urges us to draft another constitution, one that enfranchises more than just human beings:

If I am right in my interpretation of the modern Constitution, if it has really allowed the development of collectives while officially forbidding what it permits in practice, how could we continue to develop quasi-objects, now that we have made their practice visible and official? By offering guarantees to replace the previous ones, are we not making impossible this double language, and thus the growth of collectives? That is precisely what we want to do. This slowing down, this moderation, this regulation, is what we expect from our morality. The fourth guarantee – perhaps the most important – is to replace the clandestine proliferation of hybrids by their regulated and commonly-agreed-upon production. It is time, perhaps, to speak of democracy again, but of a democracy extended to things themselves.

(Latour, 1994: 141–2)

Latour's analysis of the way that purification *produces* hybrids has a suggestive similarity to the representation of interspecies reproduction in government documents with which this article began. The modern process Latour describes – the denial of hybrids and consequent proliferation of them – recalls the linked fascination with/fear of interspecies reproduction that is revealed in the government documents discussed above. Moreover, the move towards the 'regulated and commonly agreed upon production' of hybrids called for by Latour may be precisely what is going on when the authors of the Warnock report and the

Muller Panel report acknowledge the production of human-animal chimeras as part of normal reproductive technology, and recommend regulation of their production, in the passages from government documents concerning reproductive technology with which I began.

Yet while Latour's language – like that of the Muller Panel – is overshadowed by the racializing discourse of the nineteenth century, his text is disturbingly blind to the gender categories that – if mapped on to his tidy diagram – would cross-cut his gridded areas of purification and translation. What does Latour leave out of the picture, due to his gender blindness? One way of understanding the project of *We Have Never Been Modern* is as a call for a more complete acknowledgment of the fullness of all being, of life itself.¹⁴ Latour's call for wider enfranchisement, with its self-conscious rhetoric of a new 'Nonmodern Constitution' and a 'Parliament of Things', is an echo of the Enlightenment moment of the formation of the liberal civil state. Latour even redefines the freedom that state promised: 'freedom is redefined as a capacity to sort the combinations of hybrids' (p.141). Yet the very discourse Latour uses invokes an era when the political subject, while newly redefined, was anything but hybrid. If it was no longer the child-subject of a patriarchal king-father, it was instead the new autonomous, homogenous, white male individual subject of fraternal democracy. Precisely that Enlightenment echo reveals the flaw in the affirmation of interspecies reproduction put forth by both Latour and Haraway. As Carole Pateman has shown, both that government and that science are founded on the notion of the autonomous male individual with the normative male body, bound in a social contract that occludes both racial and gendered others, and the sexual contract to which they are both, to different degrees, relegated.¹⁵ A reconsideration of Haraway's treatment of the reproductive body will suggest the boundary conditions that are still in force, in Latour's and Haraway's representations of xenogenesis.

'Becoming insect': xenogenesis beyond the animal kingdom

The body as seen by the new biology is chimerical.

(Sagan, 1992)

Donna Haraway concludes her history of twentieth-century primatology with a reading of science fiction – Octavia Butler's trilogy entitled *Xenogenesis*. Concerning a species of 'gene traders' called the Oankali, who must engage in interspecies reproduction in order to survive, Butler's novels explore the psychological and social implications of the human horror of xenogenesis, portraying humanity's fear of interspecies reproduction as a genetic flaw linked to human beings' excessive aggressivity and hierarchical thinking. Despite her appreciation of Butler's fictional attention to 'miscegenation, not reproduction

of the One', and her exploration of the links between racial and species boundary crossings, Haraway judges the first volume of *Xenogenesis* to be an only partially successful narrative of an alternative to the modernist heterosexual origin story. 'Dawn fails in its promise to tell another story, about another birth, a xenogenesis. Too much of the sacred image of the same is left intact' (p. 380).¹⁶

Haraway's comment alerts us to one important, and overlooked, philosophical implication of our responses to the image of interspecies reproduction: that we can be engaged in protecting the status quo not only when we prohibit reproduction with members of other species, but also when we fail to question the *kind* of reproduction we 'think with' when we imagine such transgressions. Sexual reproduction is only one, and arguably not even the predominant, kind of reproduction that is found in nature; bacterial budding, rhizomic replication, spore production, viral infection, symbiosis, bacterial recombination – such reproductive models challenge not only our *humanness*, but also (and perhaps more profoundly) our *animality*. A work of fiction that articulates the powerful disorientation or deterritorialization catalysed by a reconceptualization of reproduction as other-than-[hetero]sexual is Clarice Lispector's *The Passion According to G.H.* (1978), a novel that calls into question the boundaries not only of class, race, gender and species, but of propagative methods as well. The novel was written after a failed episode of heterosexual reproduction, according to Rosi Braidotti: 'Clarice Lispector acknowledges that she wrote *La Passion selon G.H.* following the experience of an abortion: consequently, the maternal is one of the horizons within which the deconstruction of Woman takes place in this story' (Braidotti, 1994: 128). Motherhood and even womanhood being left behind in the course of G.H.'s ecstatic experience of becoming-woman, the novel ends with a transfiguring moment of symbiotic connection with a cockroach. This encounter can be understood not only as a transcendence of humanness, but as an act of 'becoming-insect', and as such, an act of interspecies propagation (ibid.). Lispector's novel thus extends Haraway's feminist postmodern articulation of interspecies reproduction into the space *beyond* 'the sacred image of the same' that even Haraway herself has explained (perhaps unavoidably, given her topic) in *Primate Visions*. The result is both the creation of a new sort of hybrid – 'becoming-insect' – and a new vision of interspecies reproduction. As Braidotti explains Deleuze and Guattari's theory of 'becoming-animal', it is 'a question of multiplicity . . . the chain of becomings goes on: becoming-woman/child/animal/insect/vegetable/matter/molecular/imperceptible, etc., etc.' (p. 129). 'The insect as a life form is a hybrid insofar as it lies at the intersection of different species: it is a winged sort of fauna, microcosmic' (p. 127). Introducing the woman 'becoming-insect', *The Passion According to G.H.* also introduces a new perspective on interspecies reproduction. G.H.'s abject, feminized experience of encounter with the cockroach, which as an insect is one of the range of abject beings that 'correspond to hybrid and in-between states, and as such . . . evoke both fascination and horror, both desire and loathing', shifts the whole

notion of xenogenesis from the register of heterosexual reproduction to the register of propagation ‘by contagion, [that] has nothing to do with filiation by heredity’ (Braidotti, 1994: 128; Deleuze and Guattari, 1993: 241). Yet crucially, unlike Kafka’s *Metamorphosis* as read by Deleuze and Guattari, this shift to a non-filiative reproduction does *not* involve the abandonment of sexual differences, according to Braidotti:

in Clarice Lispector’s story . . . the entire process of becoming, down to the crux of the encounter with the insect, is specifically sexed as female. References to sexuality, to motherhood, to body fluids, to the flow of milk, blood, and mucus are unmistakably female. At the same time, however, the structure of the successive becomings experienced by G.H. is in keeping with Deleuze’s analysis of becoming as a symbiotic metamorphosis.

(p. 129)

Let me briefly elaborate on the connections Braidotti only implies, since she is not considering the implications of Lispector’s story for the image of interspecies reproduction, between a non-heterosexual, non-animal conception of reproduction and a proliferation of differences. As Deleuze and Guattari theorize it, ‘filiative production or hereditary reproduction’ (heterosexual reproduction whether human or animal) is more about sameness than difference: ‘the only differences retained are a simple duality between sexes within the same species, and small modifications across generations’ (p. 242). Interspecies reproduction within the register of filiative production/hereditary reproduction would thus maintain the dominant sameness, adding only the difference of species to the difference of sex (M or F). In contrast, interspecies reproduction beyond that filiative register, the notion of ‘a propagation, a becoming that is without filiation or hereditary propagation’, proliferates differences. Deleuze and Guattari illustrate this in a paragraph that is a veritable catalogue of posthuman reproductive possibilities:

We oppose epidemic to filiation, contagion to heredity, peopling by contagion to sexual reproduction, sexual production. . . . Like hybrids, which are in themselves sterile, born of a sexual union that will not reproduce itself, but which begins over again every time, gaining that much more ground. Unnatural participations or nuptials are the true Nature spanning the kingdoms of nature. . . . That is the only way Nature operates – against itself. . . . For us . . . there are as many sexes as there are terms in symbiosis, as many differences as elements contributing to a process of contagion.

(pp. 241–2)

Yet although they are occurring in the register of the posthuman, these new differences catalyse the same doubled pattern of ‘fascination and horror, both

desire and loathing', suffusing the fantasies of racial and species boundary-crossing with which I began (Braidotti, 1994: 128). The link here seems to be the persistence of the gendered female in all hybrid and in-between states, whether or not they occur in the realm of binary gender constructions. In short, gender constructions persist even into the realm beyond gender, beyond the human. The way that the attraction/repulsion to boundary crossing is feminized recalls the epigraph from Irigaray with which Braidotti begins her analysis of the feminist limitations of Deleuze's notion of 'becoming woman': 'In order to become, it is essential to have a gender or an essence (consequently a sexuete essence) as *horizon*' (p. 111).

The act of trying to think interspecies reproduction within an alternative register of symbiotic becoming is, according to Braidotti, a 'historically necessary' project for feminists, because she believes there are philosophical implications to the affirmation or refusal of the register of oedipal sameness within which heterosexual filiative reproduction occurs (Braidotti, 1994: 134). Yet because the boundary-crossing such a project entails will always evoke the feminized abject, it will also always place us as feminists in 'paradoxical space' – the peculiar condition, as Gillian Rose describes it, of occupying simultaneously 'spaces that would be mutually exclusive if charted on a two-dimensional map – centre and margin, inside and outside' (Rose, 1993: 140). Working between centre and margin, theory and practice, we must come to terms with the appeal of a model of non-filiative interspecies propagation that challenges the dominance of what Deleuze and Guattari rather dismissively term 'the simple duality between sexes within the same species' while still retaining our attention to the material effects of that 'simple duality', 'the *practice* of sexual difference as a conceptual and political project' (Deleuze and Guattari, 1993: 242; Braidotti, 1994: 135).

Who gets a voice?

If the philosophical implications of the postmodern embrace of interspecies reproduction within the alternative register of non-sexual reproduction are the affirmation of 'connections, alliances, symbiosis', of multiplicity and diversity rather than uniformity, what of the practical, material implications of interspecies reproduction considered within the realm of present, or potential, practices of sexual reproduction (Braidotti, 1994: 129)? Returning to the government documents with which we began, we can consider the implications of two different contexts (at least): interspecies reproduction within the existing programme of reproductive technology, and interspecies reproduction as part of a potential programme of feminist reproductive intervention. (British author and science writer Naomi Haldane Mitchison anticipated the latter in her 1975 novel of feminist reproductive technologies, *Solution Three*.)

Since the latter scenario is closest to Lisspector's passionate revelation, let us begin there – by challenging its practical implications. We can ask: What would be the material consequences of a feminist enactment of interspecies reproduction? The crucial point here is that even when we are considering the feminist implications of hybrids within the realm of animal reproduction, such fantasies of disrupting the oedipal economy of the same will *differ in their emancipatory potential depending on the subject position of the woman engaging in it*. To give just one example of the ways such feminist positions can differ: a white, middle-class, post-child-bearing, premenopausal woman, who is socially constructed as a member of the dominant, non-criminal class, and whose political sympathies are both technophilic and conservationist, could be drawn to interspecies reproduction because of the ways it can challenge the boundaries of class and species. That is, while surrogate mothers often imagine themselves achieving class mobility by gestating a child for a middle- or upper-class couple, interspecies reproduction (with all of its legacy of hierarchized racial and species shift) would clearly disrupt that fantasy. Similarly, while First World conservationists advocate the preservation of endangered species as a resource for human medical, environmental, psychological and aesthetic needs, the act of gestating a non-human inverts a human-centred scenario, using the human body as a vehicle for another's species survival. In contrast, a middle-class, technophilic, African-American woman, still of child-bearing age, coded as criminal in the racist West, and strategically identified with her racial group, could find the fantasy of interspecies reproduction a horrifying replay of racialized notions of race-and-species hierarchy, of devolution, and ultimately of racial extirpation, through the threatening prospect of losing an identity-relevant essentialism with the birth of a hybrid baby.¹⁷

Just as subject position, and particular race and class location, shape the implications of the fantasy of a feminist creation of hybrids, so too the subject positions of the scientist/doctor and the object of scientific/medical intervention shape the implications of xenogenesis were it to be carried out in the context of existing reproductive technological practices. Returning for a moment to the Muller Panel's recommendations, if, as my reading of Latour suggested, the panel's regulation of hybrids represents a move to 'rewrite the Modern Constitution' as Latour would put it, we need to consider who is enfranchised by that new constitution, and whom it excludes. If the hybrid is gaining a voice as part of this increasing move to interspecies reproduction, does that gain come at a time when there is no voice for the women who act as surrogate mothers and undertake the arduous processes of *in-vitro* fertilization and egg and embryo harvesting? While the hybrid is achieving a voice, are women losing ours?

Although it is unfashionably utopian, I want to end this article with an exhortation. We have seen that even so charged and seemingly unambiguously negative an image as interspecies reproduction means something very different in its different discursive contexts. We must continue our work of contextualization

– both historical and literary – as part of the project of feminist cultural studies of science. Keeping the context in mind, then, we should not embrace the hybrid or affirm xenogenic desire until and unless we are satisfied that we are not obscuring the persistence of gender hierarchies (even into the realm of the posthuman), and that we are not silencing or objectifying the reproductive experiences of women, in all of their variety, multiplicity and diversity.

Notes

- 1 Mary Warnock, *A Question of Life: The Warnock Report on Human Fertilisation and Embryology* (London: Basil Blackwell, 1985): 70.
- 2 *Final Report of the Human Embryo Research Panel*, National Institutes of Health, 27 September 1994: 95–6. Because the panel is also known under the name of its chair, Stephen Muller, Ph.D., President Emeritus, Johns Hopkins University, further references will appear in parentheses in the text, under this form: (Muller Panel, 00).
- 3 Sigmund Freud, 'Negation (1925)', *Collected Papers*, Vol. 5, *Miscellaneous Papers, 1888–1938*, ed. James Strachey (New York: Basic Books, 1959): 181–5, 182.
- 4 As Michelle Cliff has reminded us recently: 'Did you know . . . that Thomas Jefferson held the popular view that the Black race was created when Black women mated with orangutans? (I do not know where the original Black women were supposed to have come from.)' (Michelle Cliff, 'Object into subject: some thoughts on the work of black women artists', in Gloria Anzaldúa (ed.) *Making Face, Making Soul: Haciendo Caras: Creative and Critical Perspectives by Women of Color* (San Francisco, CA: Aunt Lute Foundation Books, 1990): 271–90, 273.
- 5 Londa Schiebinger, *Nature's Body: Gender in the Making of Modern Science* (Boston, MA: Beacon Press, 1993): 95. Schiebinger is citing William Cohen, *The French Encounter with Africans: White Responses to Blacks, 1530–1800* (Bloomington: Indiana University Press, 1980): 242. Schiebinger notes, 'As Cohen pointed out, this was a rumor started by the English' (p. 239).
- 6 Robert Young, *Colonial Desire: Hybridity in Theory, Culture, and Race* (New York and London: Routledge, 1995): 6.
- 7 '[H]ybridity as a cultural description will always carry with it an implicit politics of heterosexuality. . . . The reason for this sexual identification is obvious: anxiety about hybridity reflected the desire to keep races separate, which meant that attention was immediately focused on the mixed race offspring that resulted from inter-racial sexual intercourse, the proliferating, embodied, living legacies that abrupt, casual, often coerced, unions had left behind' (Young, 1995: 25).
- 8 *Ibid.*: xii.
- 9 The term 'xenogenesis' first received mass public attention when it appeared in Octavia Butler's *Xenogenesis Trilogy*, the science fiction trilogy exploring

- interspecies communication and reproduction. The three volumes of the trilogy are *Dawn* (New York: Warner Books, 1987), *Adulthood Rites* (New York: Warner Books, 1988), and *Imago* (London: Victor Gollancz SF, 1989). As Donna Haraway observes in one of the earliest and best analyses of Butler's trilogy, 'Butler's fiction is about miscegenation, not reproduction of the One' *Primate Visions: Gender, Race and Nature in the World of Modern Science* (New York: Routledge, 1989): 378–9.
- 10 H. G. Wells, *The Island of Dr. Moreau* (1896) (New York: Signet, 1988): 76.
 - 11 Roald Dahl, 'Royal Jelly', in *Kiss Kiss* (1959; London: Penguin Books, 1962): 103–30.
 - 12 Jenny Newman, 'Mary and the monster: Mary Shelley's *Frankenstein* and Maureen Duffy's *Gor Saga*', in Lucie Armitt (ed.) *Where no Man has Gone Before: Women and Science Fiction* (London: Routledge, 1991): 85–96, 92.
 - 13 While Latour never explicitly defines hybrids, he speaks of them as 'entirely new types of beings, hybrids of nature and culture'. Though the examples he gives are predominantly networked combinations of natural and technical objects, the engineered conjunction of human and animal species, or of two divergent life forms, is clearly also part of his understanding of hybridity (pp. 10, 1–2).
 - 14 Barbara Duden (1994) has explored the simplifications built into the increasing use of this term, as has Evelyn Fox Keller (1995) and Richard Doyle (1997).
 - 15 Pateman does not discuss how the sexual contract is shaped by racialization, but the work of Robert Young suggests that a similar contract of sexual access to the bodies of disenfranchised racial others is integral to the institution of slavery.
 - 16 Another recent novel that comes closer to telling the alternative story of xenogenesis that Haraway misses in Butler's sociobiologically overdetermined trilogy, though still in the predominant register of animal reproduction, is Geoff Ryman's *The Child Garden* (1989). Although the narrative context is a world in which viral replication is central to all life, its focal story is that of Rolfa, a genetically engineered polar bear, pregnant with an interspecies foetus.
 - 17 My thanks to Charis Cussins for this analysis and to both Charis and Angela Lintz for their very helpful comments on an earlier version of this article, 'Interspecies reproduction: the feminist implications of hybrids', delivered at the conference on 'Women, gender and science', University of Minnesota, Minneapolis, Minnesota, 12–14 May 1995. See Cussins, forthcoming.

References

- Braidotti, Rosi (1994) 'Of bugs and women: Irigaray and Deleuze on the becoming-woman', in Caroline Burke, Naomi Schor and Margaret Whitford (eds)

- Engaging with Irigaray: Feminist Philosophy and Modern European Thought*, New York: Columbia University Press: 111–37.
- Butler, Octavia (1987) *Dawn*, New York: Warner Books.
- (1988) *Adulthood Rites*, New York: Warner Books.
- (1989) *Imago*, London: Victor Gollancz SF.
- Cliff, Michelle (1990) 'Object into subject: some thoughts on the work of black women artists', in *Making Face, Making Soul: Haciendo Caras: Creative and Critical Perspectives by Women of Color*, San Francisco, CA: Aunt Lute Foundation Books: 271–90.
- Cussins, Charis (forthcoming) 'Confessions of a bioterrorist', in E. Ann Kaplan and Susan M. Squier (eds) *Playing Dolly: Technocultural Formations, Fantasies, and Fictions of Assisted Reproduction*, New Brunswick: Rutgers University Press.
- Dahl, Roald (1959) 'Royal Jelly', in *Kiss Kiss*, London: Penguin Books: 103–30.
- Deleuze, Gilles and Guattari, Felix (1993) *A Thousand Plateaus: Capitalism and Schizophrenia*, Minneapolis: University of Minnesota Press [1987].
- Doyle, Richard (1997) *On Beyond Living: Rhetorical Transformations of the Life Sciences*, Stanford University Press.
- Duden, Barbara (1994) *Disembodying Woman: Perspectives on Pregnancy and the Unborn*, Cambridge, MA: Harvard University Press.
- Duffy, Maureen (1982) *Gor Saga*, New York: Viking Press.
- Freud, Sigmund (1959) 'Negation (1925)', in James Strachey (ed.) *Collected Papers*, Vol. 5, *Miscellaneous Papers, 1888–1938*, New York: Basic Books: 181–5.
- Haldane, J. B. S. (1923) *Daedalus, or Science and the Future*, London: Kegan Paul, Trench, Trubner & Co.
- Haraway, Donna (1989) *Primate Visions: Gender, Race, and Nature in the World of Modern Science*, New York: Routledge.
- Huxley, Aldous (1969) *Brave New World* [1932], New York: Harper & Row.
- Keller, Evelyn Fox (1995) *Refiguring Life: Metaphors of Twentieth-Century Biology*, New York: Columbia University Press.
- Lessing, Doris (1988) *The Fifth Child*, New York: Alfred A. Knopf.
- Lispector, Clarice (1988) *The Passion According to G.H.*, trans. Ronald W. Sousa, Minneapolis: The University of Minnesota Press.
- Ludovici, Anthony (1929) *Lysistrata or Woman's Future and Future Woman*, London: Kegan Paul, Trench, Trubner & Co.
- Mitchison, Naomi (1995) *Solution Three* [1975], New York: The Feminist Press.
- National Institutes of Health (1994) *Final Report of the Human Embryo Research Panel*, 27 September.
- Newman, Jenny (1991) 'Mary and the monster: Mary Shelley's *Frankenstein* and Maureen Duffy's *Gor Saga*', in Lucie Armitt (ed.) *Where No Man Has Gone Before: Women and Science Fiction*, London: Routledge: 85–96.
- Pateman, Carole (1988) *The Sexual Contract*, Stanford: Stanford University Press.
- Rose, Gillian (1993) *Feminism and Geography: The Limits of Geographical Knowledge*, Minneapolis: The University of Minnesota Press.
- Ryman, Geoff (1989) *The Child Garden or A Low Comedy*, London: Unwin Hyman.

- Sagan, Dorion (1992) 'Metametazoa: biology and multiplicity,' in Jonathan Crary and Sanford Kwinter (eds) *Incorporations*, New York: Zone Press: 362–85.
- Schiebinger, Londa (1993) *Nature's Body: Gender in the Making of Modern Science*, Boston, MA: Beacon Press.
- Shelley, Mary (1981) *Frankenstein* [1818], New York: Bantam.
- Warnock, Mary (1985) *A Question of Life: The Warnock Report on Human Fertilisation and Embryology*, London: Basil Blackwell.
- Wells, H. G. (1988) *The Island of Dr. Moreau* [1896], New York: Signet Classics.
- Young, Robert (1995) *Colonial Desire: Hybridity in Theory, Culture and Race*, New York and London: Routledge.