

Postgenderism: Beyond the Gender Binary

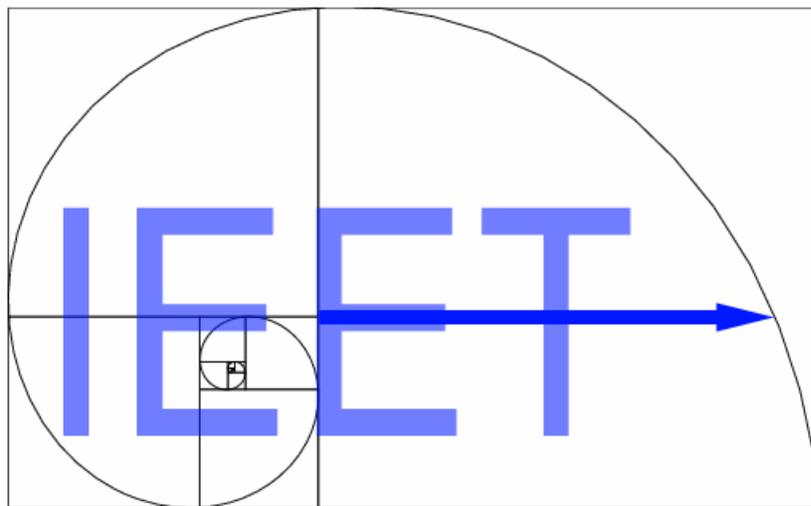
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Abstract

Postgenderism is an extrapolation of ways that technology is eroding the biological, psychological and social role of gender, and an argument for why the erosion of binary gender will be liberatory. Postgenderists argue that gender is an arbitrary and unnecessary limitation on human potential, and foresee the elimination of involuntary biological and psychological gendering in the human species through the application of neurotechnology, biotechnology and reproductive technologies. Postgenderists contend that dyadic gender roles and sexual dimorphisms are generally to the detriment of individuals and society. Assisted reproduction will make it possible for individuals of any sex to reproduce in any combinations they choose, with or without "mothers" and "fathers," and artificial wombs will make biological wombs unnecessary for reproduction. Greater biological fluidity and psychological androgyny will allow future persons to explore both masculine and feminine aspects of personality. Postgenderists do not call for the end of all gender traits, or universal androgyny, but rather that those traits become a matter of choice. Bodies and personalities in our postgender future will no longer be constrained and circumscribed by gendered traits, but enriched by their use in the palette of diverse self-expression.

I. Introduction

Humans have been deeply circumscribed and determined by our accidental binary gender assignments (Geary, 2006; Ridley, 2003). The gender binary has shaped the human condition, causing us to see the world through basic binary categories from our metaphysics to our linguistics. The biological bases of the gendered cognition, gender identity and sexual preference impose limits on our capacity for communication and intersubjective understanding and empathy. Biological gender dimorphism is the most basic power dynamic in society, allowing men to coerce women with their stronger bodies and dominance-driven behavior.

Today however, our Enlightenment values and emergent human potentials have come into conflict with the rigid gender binary. We have spent the last two hundred years in the West slowly dismantling the heritage of patriarchal power, culture and thought. Juridical equality, weapons and the police have reduced the determinative power of male physical coercion. Post-industrial production, contraception and abortion have eliminated most of the rationale for gendered social roles in work and the family, reducing the burden of patriarchal oppression on women.

The decline of patriarchy and dyadic gender has advantages for men as well as women. Gendered brains and social roles have led men to have shorter life expectancies, to be more likely to take health risks, to die in combat and work in dangerous occupations. For instance, males tend to have more accidents than females across their entire life spans; for every girl that is injured on a playground, four boys are likewise injured.¹

Efforts to ameliorate patriarchy and the disabilities of binary gender through social, educational, political and economic reform can only achieve so much so long as the material basis, biological gendering of the body, brain and reproduction, remains fixed. Postgenderism confronts the limits of a social constructionist account of gender and sexuality, and proposes that the transcending of gender by social and political means is now being complemented and completed by technological means.

¹ Geary, 319. B. N. Rosen and Peterson concluded that the sex differences in accidental injury and death rates were related to the sex differences in activity levels, risk taking, and frequency in engagement in rough-and-tumble and competitive play.

Gendered occupational achievement is a case in point. Patriarchal culture contributes to differences in boys' and girls' educational access, career aspirations, and the wage and social status advantage that men enjoy in employment in most (if not all) industrialized nations. But some degree of gendered occupational stratification is also the inevitable result of the greater burden of childbearing on women, and the different abilities and aspirations coded in the gendered brain. Women are more impaired in the workforce by pregnancy and childbirth, even with the best child care support. Men also perform better on some intellectual tasks, such as spatial visualization, while women outperform men on verbal acuity and some forms of symbol manipulation tests.²

Technological progress is ameliorating these gender differences, but only the blurring and erosion of biological sex, of the gendering of the brain, and of binary social roles by emerging technologies will enable individuals to access all human potentials and experiences regardless of their born sex or assumed gender.

2. Cultural Antecedents and Postgender Theory

2.1 Intersexuality and Hermaphrodites

Many societies have had roles for gender non-conformists and hermaphrodites, roles and images which continue to shape our cultural trajectory toward a postgender future (Feinberg, 1996). Historical and medical scholarship (Dreger, 2000) has drawn attention to the wide variation in the size and morphology of human genitals, and the existence of people with a variety of conditions that cause indeterminate sex. The incidence of intersexuality is disputed, and it may now be more prevalent than before due to environmental chemicals that mimic estrogen and interfere with fetal genital development (Dumoski, Myers, Colborn, 1997). At the high end of estimates, Brown gender theorist Anne Fausto-Sterling (1993, 2000) has estimated that the incidence of intersexuality may be as high as 1.7% of the population, if all genital abnormalities are included. However other scholars argue that intersexuality should be reserved for conditions in which the person's chromosomes are a different sex than their phenotypic sex characteristics, or in which they have truly ambiguous genitalia. Using this more conservative criteria the incidence of intersexuality is closer to 0.018% (Sax, 2002).

In some cultures the intersexed have been embraced as a "third gender," and given special roles, and in others they have been shunned or expected to pick a gender within the binary. With the rise of cosmetic surgery and pediatric medicine in the West in the 20th century many parents of newborns with abnormal genitalia were advised to have their children's genitals adjusted to a normative version of one or the other gender. This practice has been challenged in the last decade by groups such as the Intersex Society of North America, which argue for greater caution. The genital surgeries, such as clitoris reduction (Minto et al., 2003), often reduce adult sexual sensitivity, and the child may be assigned a gender at variance to their chromosomal sex or adult psychological gender identity. Some intersex activists have adopted a postgenderist position, that there is no need to encourage children to ever choose either male or female gender roles. For these intersex radicals, the intersexed are a vanguard of postgenderist rejection of the gender binary.

Intersexual characters have begun to appear now in science fiction, pornography and popular culture. Intersexual characters are common in Japanese erotic comic books. The classic science fiction novel *Left Hand of Darkness* by Ursula K. LeGuin (1969) depicts a society that has engineered itself to be neuter for most of each month, except for a period of heat in which they become either male or female. Science

² Geary, 305. Specifically: Wechsler Adult Intelligence Scale – Revised and the Wechsler Intelligence Scale for Children – Revised both revealed that the overall IQ score of boys and men was about 2 points higher than that of girls and women, on average.

fiction author Lois McMaster Bujold's Miles Vorkosigan series has a hermaphrodite character from a postgender society that has intentionally genetically engineered itself so that all its members are hermaphrodites. The protagonist of Jeffrey Eugenides' best-selling 2002 novel *Middlesex* (2002) is chromosomally male but appears to have a vagina, and is raised as a girl until becoming male as an adolescent.

2.2 Homosexuality, Bisexuality, Castration and Cross-dressing

Androgynous, cross-dressing, castrated or homosexual people have had socially sanctioned roles in many cultures around the world, as far back as the beginnings of recorded history in Mesopotamia and Egypt, often as a "third sex" (Herdt, 1996; Wikipedia, 2008a; Wikipedia, 2008b). One example of this accommodation is the transvestite *berdache* or "two-spirit people" among the aboriginal cultures of Siberia and the Americas (Halifax, 1979), a role documented among more than 130 aboriginal tribes of North America (Roscoe, 1991; Lang, 1998). Both males and females became berdache by cross-dressing, and there was no necessary relationship of their status to their physiology or sexual preferences. Male-bodied berdache in these cultures served a variety of spiritual, medical and social roles, from burying the dead to telling the future to arranging marriages. Female-bodied berdache could be chiefs, warriors, healers and hunters.

Gender variant people in traditional cultures often modeled themselves on androgynous divinities, or formed special cults to legitimate their gender variance. Male devotees of the Roman cult of Cybele castrated themselves to become a third sex, the *Galli*. Another example of a third sex social role legitimated by a cult are the Indian *hijra*. Ancient Indian medicine and philosophy recognized the existence of third genders. Hijras are generally effeminate homosexual men who join the cult of the Goddess Bahuchara, consider themselves a third sex, and perform ritual dances at the birth of children. They may also work as prostitutes. Only some are castrated. However the hijras have low social status, generally live in poverty and have disdain for uncastrated, non-hijra homosexual men (Patel, 1997). However they are recognized as a third sex under Indian law, and can have the gender "E" for eunuch on their passports. By contrast, though contemporary Thai culture has the very visible and accepted "ladyboy" or *kathoey* subculture of male-to-female transsexuals, they are not yet allowed to change their legal gender from their birth gender, much less adopt a legal third gender (Loxton, 2007).

Many cultures have also had special roles for voluntary or involuntary eunuchs or castrati (Taylor, 2000). In China, India and the Middle East male servants were castrated to make them more trustworthy in tending to aristocratic women, but also because their apartness, low social status and inability to have children made them less threatening in court intrigues. Nonetheless eunuchs often accumulated great power in imperial and aristocratic service, and the Chinese eventually responded to the growing number of families castrating their sons by banning castration (Anderson, 1990).

Some early Christians castrated themselves to remove sexual desire, and the gospel of Matthew (19:12) appears to indicate Christ's approval of the practice. This passage is thought to stem from the early Christian's affirmation of and appeal to eunuchs of the time (Kuefler, 2003). Later church fathers, especially Augustine, interpreted the passage as an argument for priestly celibacy (Taylor, 2000).

2.3 Sexology, Bisexuality and the Third Sex

The story of the modern sexual liberation movement in the West is often said have begun with the pioneering work of German sexologist Magnus Hirschfeld. Hirschfeld advocated the legalization of homosexuality, and argued that sexual and gender variant people all were a "third sex." After World War

One Hirschfeld established the Institut für Sexualwissenschaft (Institute for Sexual Research) in Berlin. Hirschfeld organized the First Congress for Sexual Reform in 1921. One of the first acts of the Nazi government of 1933 however was to close the Institute and burn its library.

Although Hirschfeld's theories conflated intersex, homosexuality, and gender variant behavior, attributing all to an underlying hormonal cause, his advocacy was in some ways far more progressive than that of the more famous sexologist Alfred Kinsey and the Kinsey Institute in the 1950s. However, Kinsey's reports (1948, 1953) on the sexual experiences of American men and women did introduce an idea far more useful than that of the third sex, the Kinsey scale. A "0" on the Kinsey scale meant the subject was completely heterosexual, while a "6" was exclusively homosexual. As Kinsey et al. argued in *The Sexual Behavior of the Human Female* (1953):

It is a characteristic of the human mind that tries to dichotomize in its classification of phenomena....Sexual behavior is either normal or abnormal, socially acceptable or unacceptable, heterosexual or homosexual; and many persons do not want to believe that there are gradations in these matters from one to the other extreme.

Although their methods of the Kinsey team have subsequently been shown to be unrepresentative of the population as a whole, Kinsey's reports suggested that a significant part of the population was bisexual, neither exclusively heterosexual or homosexual, and that this group was probably larger than those who were exclusively homosexual. By the 1990s bisexuals had emerged as their own sexual identity within Western queer culture, obliging a separate acknowledgement in the growing list of sex/gender radicalisms (Rust, 1999, 2002).

2.4 Beyond Gender Essentialism and Constructionism

During the 1970s the dominant position on nature-nurture among feminists and progressives was "social constructionism" (Delamater, 1998). Patriarchal attitudes and behaviors, gendered differences in abilities and interests, and sexual preferences, were all the result of culturally specific patriarchal and heterosexist socialization. Drawing on Freud, humans were assumed to be naturally "polymorphously perverse," or at least bisexual, until they were conditioned to only respond to heterosexual genital sex. According to Michel Foucault's (1978) influential theories on the social construction of sex and gender, pre-modern societies did not even have the concept of gay and straight, they simply sanctioned or forbade acts without any idea that the acts implied anything about a person's "orientation." Proponents of evolutionary explanations for gendered behavior in the 1970s, especially the "sociobiologists," (Wilson, 1976) were attacked for phony science and as politically reactionary.

Since the 1970s, however, the influence of genetics, hormones and a biologically gendered brain on gendered beliefs, abilities and behavior has been increasingly, grudgingly acknowledged. Socialization to traditional gender roles and heteronormativity certainly contributes to the disabilities and dysfunctions associated with the gender binary. But socialization does not explain all the differences between male and female cognition, emotion and behavior.

The emergence of ecofeminism in the 1980s as a 180 degree turn away from radical social constructionism back to biological gender essentialism (Sturgeon, 1997) was an acknowledgement of the inescapability of a biological basis for sex, gender and sexual preference. The ecofeminists integrated naturalism and deep ecology into their framework and celebrated the gender binary. In the ecofeminist narrative women's brains and their role in reproduction made them more nurturant, while testosterone-poisoned male brains just wanted violence, and to rape women and nature. While a few feminists in the 1970s, such as Shulamith Firestone (1970), had suggested that reproductive technologies could liberate women from biology, ecofeminists saw technology as a part of the suppressive superstructure of male patriarchy.

In reaction to the ecofeminists' biological essentialism and reification of gender dualism, socialist-feminist Donna Haraway emerged in 1984 as a postgender theorist arguing for technological transgression to

liberate both women and men from the gender binary. Haraway 1984 essay "A Manifesto for Cyborgs: Science, Technology, and Socialist Feminism in the 1980s," was a critique of Luddite ecofeminism. She argued that it was precisely in the eroding boundary between human beings and machines, in the integration of women and machines into a new liberatory androgynous archetype, that we can find liberation from patriarchy and capitalism. Haraway says "I would rather be a cyborg than a goddess." Her essay and subsequent writings have inspired the new sub-discipline of "cyborgology" (Gray, 1995) or "cyberfeminism" (Plant, 1998; Sollfrank, 2007) and "technofeminism" (Wajcman, 2004).

The gathering evidence of a biological basis for gendered cognition, abilities and dominance behavior has generated many other responses from egalitarian theorists. Another example is the philosopher Peter Singer, who argued in *A Darwinian Left: Politics, Evolution, and Cooperation* (2001) that there is a biologically rooted tendency towards selfishness and hierarchy in human nature which has defeated attempts at egalitarian social reform. If the Left program of social reform is to succeed, Singer argues, we must employ the new genetic and neurological sciences to identify and modify the aspects of human nature that cause conflict and competition.

2.5 PostGender Theory and Politics Today

The goal of a completely postgender society, instead of just gender equality and tolerance of gender diversity, emerged among some of the social constructionist feminists and sex radicals of the 1970s. For instance radical psychologists such as Sandra Bem (1974), the developer of the Bem Sex Role Inventory, began to reconceptualize gender traits as a continuum, along which it was healthiest to be in the androgynous range. The androgynous had the highest self-esteem, psychological well-being and emotional intelligence, while those at the psychological extremes of gender were re-cast as constrained and disabled (Guastello and Guastello, 2003).

Androgyny was also then adopted by the New Age and transpersonal psychology movements, and melded with the pre-existing cultural and religious ideas about spiritual transcendence of gender (Singer, 1977). The inner spiritual being had both male and female attributes, or was androgynous, and becoming androgynous was spiritually superior to ordinary gendered life. Although most monastic institutions are highly differentiated on gender lines, one can also see elements of spiritual androgyny in celibate religious orders as well.

The stage was then set for a radicalization of the emerging transgender and transsexual subculture into a postgenderist movement. The first male-to-female and female-to-male surgical and hormonal experiments had begun after World War Two, and emerged into the public consciousness when the former US soldier Christine Jorgensen made headline news in the West in 1952 after receiving a sex-change operation and breast implants in Denmark.

But the first wave of male-to-female and female-to-male pioneers were far from postgenderist. In fact, they often adopted extreme versions of gender stereotypes in order to legitimate their transition, much to the annoyance of feminists and sex radicals. From the 1950s to the 1980s the psychologists and surgeons who dealt with the transgendered also used strict criteria for eligibility for sex-reassignment, based on binary gender and heterosexism. Lack of commitment to a heteronormative gender role could invalidate one's diagnosis as having "gender identity disorder" and needing re-assignment. While the medicalization of gender variance legitimated sex re-assignment for many, including some government agencies that need to change an individuals gender, and some insurance companies that need to pay for the hormones, counseling and surgery, it also imposed high costs and rigid expectations on the transgendered.

But in the 1980s and 1990s binary mindset began to break down as radicalized gays and lesbians and transgendered people challenged the assumption that one had to be either a woman who desired men, or a man who desired women. Nor, they argued, should transgendered people be assumed to be transitioning to

one end or the other of the gender binary. Intermediate and novel sex/gender performances and bodies – such as biological males cross-dressing and living as women with breast implants, but not seeking genital surgery - were also possible.

Gradually a new "genderqueer" politics emerged which challenged all gender binaries. One critical genderqueer text was the 1990 *Gender Trouble: Feminism and the Subversion of Identity* by Judith Butler. Butler argued that feminists had mistakenly reified the sex/gender binary, while simultaneously insisting that biology was not destiny. A truly liberatory feminism would seek to deconstruct and free us from the enforced linkages between biological sex, performative gender, and heterosexual desire. She called for intentional subversion of the gender binary – "gender trouble."

Another key text was Kate Bornstein's 1994 *Gender Outlaw*. Bornstein, a male-to-female transsexual, argued against the medicalization of transsexuality and for political unity between gays, lesbians and the transgendered. The 1995 *Apartheid of Sex - A Manifesto on the Freedom of Gender*, by the transgendered attorney and legal theorist Martine Rothblatt, argued for the complete elimination of the recognition of gender in the law. Marxist lesbian Leslie Feinberg's 1996 *Transgender Warriors: Making History from Joan of Arc to RuPaul* collected historical examples of people who had fought the gender binary, from Joan of Arc being burned at the stake for cross-dressing, to the drag queens who led the pivotal Stonewall riots against police repression of gay bars in New York City.

Today's transgender movement is a roiling, radical critique of the limits of gender roles, with folks living in totally new categories, such as non-op transsexual, TG butch, femme queen, cross-dresser, third gender, drag king or queen and transboi. These genderqueer activists and theorists advocate postgender attitudes, such as promoting the use of gender-neutral pronouns such as "ze", "per", and "zir," or the terms pansexual or omniseual instead of the binary "bisexual."

For instance, Maori novelist and self-described asexual Keri Hulme proposed a set of gender-neutral pronouns in her book, *The Bone People*: 've', 'vis' and 'ver' (Hulme, 1984). Similarly, Judith Lorber argues in her 2005 *Breaking the Bowls: Degendering and Feminist Change* that degendering can create a world where:

love and sexuality, friendships and intimacies revolve around people with a mutual attraction to each other's bodies, intellects, interests, and personalities...Children are not sexed at birth — their genitalia are irrelevant in the choice of names, blankets, and clothing... In play groups and schools, children are organized by age, size, talents, skills, reading ability, math competence—whatever the needs of the group.

But the strategic focus of the genderqueers has been largely ideological, psychological, and cultural. Although they embrace the right of the transgendered to use hormones and surgery, they have not yet promoted the kind of *materialist* critique and liberatory technological praxis to deconstruct the gender binary that the Shulamith Firestone articulated in 1971 in favor of artificial wombs as a means to deconstruct the biological basis of patriarchy.

At the beginning of the 21st century, however, posthumanist and transhumanist discourses about using technologies to intentionally transcend the limitations of the human body began to address the transcending of gender. Trans- or post-humans would *at least* be able to transcend the limitations of biological sex, and would eventually be able to transcend the biological altogether into cybernetic or virtual form. Science fiction author Greg Egan speculates about such an 'uploaded' society in his novel, *Diaspora*, where the inhabitants have largely adopted amorphous gender roles, characteristics and the use of gender-neutral pronouns (Egan, 1997).

A post-biological species would by definition - although perhaps not completely in the male transhumanist imaginary - be a post-gendered entity. In the next section we will explore some of the technologies that enable our evolution towards freedom from the constraints of the gender binary.

3. Technologies Enabling PostGender Society

3.1 Transcending Gendered Social Roles and Reproduction

3.1.1 Industrial Machinery, and Service and Intellectual Labor

Socialist feminists have long pointed out that while neither women nor workers were automatically better off with the transition to industrial society, industrialization made class and gender egalitarianism more possible. Under agricultural production women were generally constantly pregnant producing more farmers, while their husbands and sons worked the fields. They were generally legal chattel of their fathers and husbands until they achieved legal and property rights under democratic capitalism. The greater exploitation of steam, petroleum and electric power in production meant that women could drive forklifts or work on assembly lines as well as men. The integration of women into industrial jobs during World War Two--the "Rosie the Riveter" period--demonstrated both women's equal capacity in these jobs, and the continuing power of patriarchy when the women were forced to return to the home when the soldiers returned from the front. But the integration of women into autonomy and equality in the family and the workplace has accelerated in the emerging postindustrial society of the last thirty years in the West (Plant, 1998). In short, our technological progress out of agricultural and heavy industrial modes of production have enabled postgenderism in society.

3.1.2 Beyond Heterosexual Monogamy

A mounting body of ethological and sociobiological research suggests that both human males and females, like our primate and mammal cousins, are genetically inclined to have multiple partners. Even those few species that have been thought to be monogamous and pairbonded for life are now being found to have a high frequency of off-spring not related to the putative father (Barash and Lipton, 2001). Based on all this evidence Helen Fisher writes in *Anatomy of Love* that the primordial human "blueprint" is for serial sets of pair bonds lasting about four years -- long enough to raise a child to toddlerhood -- with clandestine adultery on the side.

The majority of all human societies have been polygamous (Wilson, 1992), and in most monogamous cultures men, at least, have been allowed to pursue extramarital relationships such as concubinage, prostitution, and mistresses. The modern victory of monogamy can be seen as a not very successful suppression of our non-monogamous biological natures by recent monogamous cultural norms.

One influential theory (Becker, 1981) links the rise of monogamy to the need to secure the support of poor men for the social order. While wealthy men are able to attract multiple wives in hierarchical societies, the spousal disenfranchisement of poor men breeds resentment. Monogamy helps keep social peace by spreading women around so that there is one woman for every poor man.

According to this revisionist history, the idea of romantic dyadic love was only invented 900 years ago by French poets, who bamboozled the world with their mythology of eternal, monogamous love (Ward, 1923), and then only became widely practiced with the advent of marriage by choice in the 20th century. With the spread of consensual "love marriage," legal divorce, and more egalitarian marriage in the 20th century the nature of marriage has changed entirely from its pre-modern form (Coontz, 2006). Marriage has "lost its former monopoly over organizing sexuality, male-female relations, political social and economic rights, and personal legitimacy" (Mehta, 2005). One consequence of this new concept of marriage is the rise of the demand for recognition of same sex relationships.

The spread of legal gay marriage in Europe, and its slower adoption in the US, has accelerated the recognition of legal marriage as an arbitrary contract, rather than a religious, heterosexual, dyadic institution. Therefore laws against polygamy and group marriages must eventually fall, since they are clearly based in religious discrimination. Eventually co-housing and co-parenting "civil union" contracts should replace civil marriage. Those contracts would recognize the bonds between small groups of people who have made commitments of some duration. The erosion of dyadic marriage will, in turn, help to erode the gender binary.

But the final liberation from dyadic, gendered, heteronormative relationships will likely come about through use of drugs that suppress pair-bonding impulses. Research with voles has found that genes regulating the neurotransmitter vasopressin determine whether male voles will be monogamous or polygamous. Voles with low vasopressin make weak associations between the dopaminergic pleasures of sex and the sight and smell of a particular female, while stronger genes for vasopressin entrains the vole to his female mate. If similar mechanisms are discovered in the human brain we could eventually have therapies that would allow individuals to turn their pair bonding up or down to a desired level. Some might increase it to block out a wandering eye, while other will turn it down to enable a polyamorous lifestyle.

3.2 Contraception, Abortion, Assisted Reproduction and Artificial Wombs

Similarly, and as a complement to the declining importance of male strength and constant pregnancy in agricultural society, contraception and abortion freed women from being constrained by childbearing. Prior to wide access to the condom, birth control pill and abortion, women had to join religious orders or live as spinsters in order to achieve some measure of freedom from gender expectations. The sexualized woman in the workforce was certainly not beyond gender, but she had greater freedom to pursue meritocratic acknowledgment unburdened by the constraints of sex and gender. Technologies to control fertility allowed a woman to be sexual and still participate as an equal with men in the workplace.

Many feminists are suspicious of assisted reproduction on the grounds that it is an effort to assert patriarchal technological control over women, and of course there is an entirely legitimate critique of male-dominated obstetrics behind such a view. However, some feminists have argued that technologies that liberate women from the dictates of reproduction were necessary. For instance in Charlotte Perkins Gilman's 1915 feminist utopia *Herland*, women reproduce parthenogenetically and only have daughters. The idea of female-only reproduction was also used in Joanna Russ' 1975 *The Female Man*, and in Suzy McKee Charnas' novels *Motherlines* (1978) and *The Furies* (1995).

Short of allowing the creation of an all-woman utopia, feminists have argued that reproductive technologies give women control over their own biology and potentially free them from the necessity of bearing children. In her 1970 book *The Dialectic of Sex* socialist-feminist Shulamith Firestone argued that, just as the material reality of the means of production determined the power differential between the owners and workers, the material reality of women having to bear children determined the gendering of power in society.

The heart of women's oppression is her childbearing and child-rearing roles... To assure the elimination of sexual classes requires the revolt of the underclass (women) and seizure of control of reproduction:... so the end goal of the feminist revolution must be unlike that of the first feminist movement, not just the elimination of male privilege but of the sex distinction itself; genital differences between human beings would no longer matter. (Firestone, 1970: 12)

For Firestone, the only way to fundamentally undermine patriarchy and gender itself was to liberate women from the necessity of childbearing with the technology of the artificial womb:

Pregnancy is the temporary deformation of the body of the individual for the sake of the species. Moreover, childbirth hurts and isn't good for you. At the very least, development of an option should make possible an honest examination of the ancient value of motherhood.

In the 1980s influential socialist-feminist Alison Jaggar took up Firestone's argument for a liberatory reproductive technology:

The one solid basis of agreement among socialist feminists is that to overcome women's alienation, the sexual division of labor must be eliminated in every area of life.... [W]e must remember that the ultimate transformation of human nature at which socialist feminists aim goes beyond the liberal conception of psychological androgyny to a possible transformation of 'physical' human capacities, some of which, until now, have been seen as biologically limited to one sex. This transformation might even include the capacities for insemination, for lactation and gestation so that, for instance, one woman could inseminate another, so that men and nonparturitive women could lactate and so that fertilized ova could be transplanted into women's or even into men's bodies. (Jaggar, 1983: 132).

The debate over whether extra-uterine gestation would be liberatory or disempowering continues today (Coleman, 2004; Gelfand and Shook, 2006), when the prospects for cloning, parthenogenesis and same-sex reproduction are no longer hypothetical. Progress in nuclear transfer from somatic cells into fertilized embryos, and in using somatic cells as faux sperm and eggs to create embryos (Aldhous, 2008) suggest that soon gay and lesbian couples will be able to combine germplasm to make biological children, that individuals will be able to clone themselves, and that three or more parents will be able to contribute germ plasm to create a child.

3.3 Transcending the Gendered Body and Brain

3.3.1 Sex Re-assignment and Designer Genitals

As discussed above, sex-reassignment hormones and surgery already allow people to – albeit painfully and not completely – transcend biological gender. But tissue engineering and somatic gene therapies promise much less painful and more complete sex re-assignment (BBC, 2007). Using gene therapies we will be able to ramp up testosterone or estrogen production, and selectively suppress sex-linked genetic traits, making hormone treatments unnecessary (Hughes, 2006). Once we have perfected tissue cloning and genetic engineering - within the next two decades - we will be able to craft new, fully functional breasts and sexual organs for transsexuals.

So long as gender surgeries and therapies remain within a therapeutic model, however, instead of part of a body modification or self-expression model, it will be very difficult for transgendered people to pursue non-normatively postgender bodies (Hughes, 2006). As female-to-male transgender attorney Dean Spade (2000) wrote, the medical model of "gender identity disorder" has been very useful in arguing for the social acceptance of transgender people, insurance reimbursement for their therapies, and accommodation under the law. But it has its drawbacks:

First, the medical approach to gender variance, and the creation of transsexuality, has resulted in a governance of trans bodies that restricts our ability to make gender transitions which do not yield membership in a normative gender role. The self-determination of trans people in crafting our gender expression is compromised by the rigidity of the diagnostic and treatment criteria. At the same time, this criteria and the version of transsexuality that it posits produce and reify a fiction of normal, healthy gender that works as a regulatory measure for the gender expression of all people. To

adopt the medical understanding of transsexuality is to agree that SRS is the unfortunate treatment of an unfortunate condition, to accept that gender norm adherence is fortunate and healthy, and to undermine the threat to a dichotomous gender system which trans experience can pose. The reification of the violence of compulsory gender norm adherence, and the submission of trans bodies to a norm-producing medical discipline, is too high a price for a small hope of conditional tolerance (Spade, 2006).

Just as the genderqueer critique insists that transgenders do not have to conform to the gender binary, future options for reconstruction of the body and genitals will only be limited by the imagination. We already have men receiving penile implants, and women having cosmetic surgery on their genitalia (Matlock, 2004). Plastic surgery on the vaginal labia to adjust them to a more ideal form has become sufficiently common that the American College of Obstetrics and Gynecology was moved to condemn "Vaginal Rejuvenation and Cosmetic Vaginal Procedures" (ACOG, 2007). Similarly body modifiers are experimenting with a variety of penile surgeries, from piercings to "penis splitting" (BMEzine, 2008).

We are unlikely to stop with just the cosmetic enhancement of genitals and swapping of genitals for those of the sex. Tissue engineering and nanoneural interfaces suggest that it would be possible to have a penis with the responsiveness of a clitoris, or some entirely new sexual organ. Ian McDonald's 2004 novel *River of Gods* proposes a new sexual identity and subculture, neuters or "nutes," that evolve out of the *hijra* cult in India, and whose members have their external sex organs surgically redesigned into a smooth androgynous form, whose brains are genetically adjusted to an androgynous condition, and who are given a set of internal controls over their sexual responses which have a broader range than male or female orgasms.

3.3.2 Virtual Bodies

Another technology eroding the gender binary is online sex/gender fluidity. The virtualization of sex, which began with the first cave wall paintings, has been rapid, from widespread access to and use of porn, phone sex, video-interactive sex, sex in virtual worlds, to the eventual perfection of teledildonics, the use of body suits and tactile equipment controlled from afar. Electronically mediated sex and porn are safer (no diseases or pregnancy), easier (lengthy courtship and foreplay are unnecessary), more convenient (available any time you are) and more likely to be exactly what the individual wants (your partners can be anyone, or anything, you desire, without any physical defects). Teledildonics with tactile feedback devices is the next step, and there are many experiments underway to perfect such equipment (Hayles, 1999).

One frequent feature of the online world is the crossgender presentation of self, biological men pretending to be women and vice versa (Ludlow, 1996). In the online world Second Life for instance a significant minority of the participants have a different biological sex than the avatar that they are manipulating. Sometimes this is because Second Life provides some wish fulfillment for the transgendered, and others are simply curious or titillated. When we have our brains laced with nano-neural networks (perhaps in 40 years) we will eventually be able to experience completely virtual body sensation, so we can have sex with partners in virtual reality, or with combinations of virtual reality and material reality (Kurzweil, 2005).

The growing sophistication of AI and robotics to detect human emotion, anticipate human desires and respond in ways that simulate a human response will also speed the virtualization of sex. People who are too busy, shy, or unappealing, or whose preferences are too elaborate or taboo to reveal to a living person, may turn to robot sex as an alternative (Levy, 2007). Presumably most will prefer a "gendered" robot as their surrogate lover, but the sexual robot or doll is again a step away from the expectations of the human gender dyad.

3.3.3 Beyond The Gendered Brain

Substantial evidence suggests that gender identity, gendered cognition, and sexual preference are shaped prenatally by genes and exposure to testicular and estrogenic hormones (Brizendine, 2007; GIRES, 2008). In this model, the body and brain of the fetus are by default female, and are then either "virilized" or not. In the case of the intersex condition congenital adrenal hyperplasia, a chromosomally female fetus will overproduce testosterone resulting in a large clitoris, or ambiguous genitals.

Estrogen also appears to play some role in fetal sex determination, as when the instructions to the penis in a chromosomally male fetus are interfered with, resulting in the condition hypospadias. Other chemicals appear to play a role as well. Recently researchers in Australia took female mouse embryos with XX chromosomes, and switched on the Sox3 brain gene, resulting in mice with male physiology and behavior (U of Adelaide, 2007).

Intra-uterine brain gendering, in turn, appears to have some influence on gender identity, gendered behaviors and abilities, and sexual preference. There is still an enormous amount of unexplained variance, and plenty of determination from socialization and environment (Greenberg, 2007); the twin of a gay man has only a 50% chance of being gay for instance (Bailey and Pillard, 1991). But as part of a general postgendering of society, the gradual accumulation of neurotechnologies which allow for remediation sexual preference and the gendered brain will complete the postgenderist trajectory.

Several avenues of therapy are being pursued which suggest ways we will redress the gendering of the brain. One is the effort to treat the higher incidence of depression among women, which appears to be the result of differences in serotonin regulation between men and women's brains (Karolinska Institute, 2008). Women are twice as likely to suffer from anxiety and depression, and are also more prone to suffer from eating disorders and post-traumatic stress disorder (Bryant and Harvey, 2003). Similarly, autism and attention deficit disorder have been suggested to be extreme forms of male gendering of the brain (Baron-Cohen, 2003). Male brains are also far more prone to aggression and violence, partly as a result of higher androgen and testosterone levels (Book, Starzyk and Quinsey, 2001). Efforts to treat female depression and male aggression, autism and ADD would give us ways to make the brain more androgynous. Francis Fukuyama lamented these trends, the "masculinizing" of depressive women's moods by antidepressants, and the "feminizing" of ADD boys with stimulant medications, in *Our Posthuman Future*, asserting that they were the result of pressure to conform to an "androgynous median personality" in American society (Fukuyama, 2002: 52).

Another avenue of psychopharmacology which will give us increasing control over gendered emotions, cognition and behavior is the treatment of sexual paraphilias and dysfunctions. A variety of neurochemicals have been identified which stimulate erotic desire, infatuation and trust (Fisher, 2004), and we will soon be able to suppress, entrain and focus sexual desire. Currently, we can chemically castrate pedophiles with implants that suppress their androgen, turning off their obsessive thoughts about children, along with most of their sex drive. We can stimulate sexual desire in men and women by increasing their testosterone. We can increase feelings of trust and bonding with oxytocin.

This growing understanding of the brain suggests that marriage counseling will soon be assisted by psychopharmacological re-bonding therapies (Savulescu and Sandberg, 2008). There will be no more necessity for flagging affection, sexual boredom or a wandering eye between long term partners. Eventually we will be able to directly stimulate the parts of the brain that desire specific partners or kinds of experiences. We will be able to wire ourselves to only desire sex with the opposite sex, only with our spouse, to only desire specific sex acts, and to desire it according to an agreed upon frequency.

The use of these paraphilia-suppressing and monogamy-enhancing therapies will therefore, at the outset, reinforce normative gender behavior. Just as we have prenuptial contracts for property, partners may agree to lock their love and sexual desire onto their partners for a specified period, or at least go to marital counseling to have adulterous feelings modified. But in the long run they will also allow individuals to suppress jealousy and attachment, and tune their desires in any way they like, freeing them from the neurological gendering of their sexuality.

4. Toward a Postgender Future

Postgenderism is a radical interpretation of the feminist critique of patriarchy and gender, and the genderqueer critique of the way that binary gender constrains individual potential and our capacity to communicate with and understand other people. Postgenderism transcends essentialism and social constructionism by asserting that both freedom from gender will require both social reform and biotechnology. Despite a wealth of historical and anthropological variation in gender roles, including the existence of third gender roles, there is no evidence of a gender-free society. Our contemporary efforts at creating gender-neutral societies have also reached the limits of biological gender.

Today, however, biotechnologies, neurotechnologies and information technologies make it possible to complete the project of freeing ourselves from patriarchy and the constraints of binary gender. Postgender technologies will put an end to static biological and sexual self-identification, allowing individuals to decide for themselves which biological and psychological gender traits they wish to keep or reject.

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