

IS SEX SOCIALLY CONSTRUCTED?

Catherine Clune-Taylor

Introduction

The sex/gender distinction was an important theoretical and political tool for second-wave feminists in their fight against sexist oppression and the biologically determinist arguments used to justify it. According to this distinction, sex is a natural, biological fact of the body comprised of multiple variables including external genitalia, internal reproductive structures, gonads, hormones, chromosomes, and (more recently) neurocognitive structures. Gender, on the other hand, refers to one's identification and expression as masculine or feminine, and is socially constructed. Individuals are taught socio-culturally and temporally specific norms regarding masculinity and femininity, and come to internalize, identify with, and express themselves in relation to these norms. This distinction – first employed by Anne Oakley in 1972's *Sex, Gender, and Society* – elegantly, and potently, undermined biologically determinist claims that one's male or female sex naturally gave rise to roles traditionally gendered as masculine or feminine – particularly those which supported the oppression of women. While the sexual difference of the body may be natural (and thus immutable), gender norms are socially constructed, and thus they could be otherwise.

In the late 1980s and throughout the 1990s, feminist scholars across the sciences and the humanities began to argue that, in addition to gender, sex was also socially constructed, challenging both the sex/gender distinction that had been so politically efficacious for their predecessors, and nature/culture binary on to which it maps. Sex, they argued, was socially constructed in at least two senses. First, our concepts regarding sex, itself – that is, our understanding of biological sex and its multiple material components – are shaped by socio-culturally and temporally specific meanings, and material arrangements. Many of these scholars turned to both contemporary and historical management of folks with intersex conditions in order to reveal the discursive and practical “sexing” of the body, as well as the persistent instability of definitions of sex. The second sense in which sex is socially constructed emphasizes what I will refer to as the “sociomaterial constitution of sex,” pointing to the ways which the environment socio-culturally and materially influences the development of biological sex. That is, while we may find evidence of sex differences within and across bodies, those differences may be better characterized as material effects of development within a gendered environment than evidence of naturally binary sex. For example, differences in muscularity between men and women that are frequently seen as indicative of natural sex dimorphism depend heavily on exercise opportunities, such that they could be reduced with increased access to activity, and different social norms regarding gendered embodiment (Fausto-Sterling 1985: 218).

Interdisciplinary research revealing the social construction of sex across an array of dimensions has provided stark evidence for many of the central tenants of feminist philosophy of science. Analysis of the social and material (re)construction and (re)naturalization of sex (and gender) via the biosciences (and before) has been, and remains, revelatory with regard to the social nature of knowledge, knowers, and knowledge communities, as well as deficiencies (and outright flaws) in our conceptions of knowledge and knowers, objectivity, and scientific methodology. In the following sections, I shall explore both the social construction, and the sociomaterial constitution of sex. However – as shall become clear in the course of this exploration – the distinction between these two senses of the social construction of sex is quite fuzzy, and becomes fairly difficult to maintain at various points. This is because sex is not merely the additive products of natural and cultural influences. Rather, it is a dynamic, contextually dependent assemblage – an instantiation of “natureculture” in Haraway’s sense of the term, insofar as the natural and the environmental cannot be easily disentangled (Haraway 2003). For example, according to the now-dominant biomedical model of sex difference known as brain organization theory, differences between the sexes with regard to gendered cognition, behavior, sexual and non-sexual desires, and identity are the result of the “organization” of the brain into feminine or masculine patterns by prenatal hormones (Fine 2010; Jordan-Young 2010). However, as multiple feminist scholars have pointed out, brain development is a highly dynamic, interactive, and socially dependent process, via which “the social phenomenon of gender is literally incorporated, shaping the brain and the endocrine system,” such that gendered world becomes part of and is reflected in our “cerebral biology” (Kaiser et al. 2009: 57; Rippon et al. 2014: 4). Thus, not only are neurological sex differences as much the result of one’s development within a gendered environment as they are result of the proteins one’s genes code for, they also exhibit a high-level of plasticity, calling into question the notion that such patterns are fixed or immutable. Spatial cognition – for example – is one of the few forms of cognition for which it is generally accepted that gendered differences exist. However, Feng, Spence, and Pratt (2007) have illustrated that playing an action video game for a mere ten hours can “virtually eliminate” gendered differences in spatial cognition.

The deep, dynamic entanglement between the natural and the environmental evidenced in neurological development, as well as the historically, theoretically, and materially co-constitutive nature of sex and gender more generally, has led many to argue for the use of a combined term such as “sex/gender” or “gender/sex” either in addition to or instead of sex and gender (e.g. Fausto-Sterling, Coll, and Lamarre 2012; Pitts-Taylor 2016). For example, van Anders and Dunn use the term *gender/sex* in their study of the influence of hormones on orgasm experience and sexual assertiveness in both men and women given that any differences found in the study of hormones in relation to gendered sexual differences (such as sexual aggression) cannot “knowingly be attributed to biology or gender socialization” (van Anders and Dunn 2009: 207). Rather than sex or gender, Van Anders (2015) uses the term *gender/sex* in her *Sexual Configurations Theory* (SCT) to refer to “whole people/identities and/or aspects of women, men, and people that relate to identity and/or cannot really be sourced specifically to sex or gender,” while defining gender as referring to those socialized “aspects of masculinity, femininity, and gender-diversity” (as well as one’s self, systems), and sex as “[a]spects of femaleness, maleness, and sex-related bodily features that are situated as biological, bodily, evolved, physical, and/or innate (e.g., vulvas, penises, breasts, body shape)” (van Anders 2015: 1181). Because this chapter is dedicated to exploring the social construction of sex (and along with it, the historical, theoretical, and material constitution of gender with which it is inextricably entangled), I shall treat them separately for the sake of clarity while recognizing that the aim of the chapter is, ultimately, to show that they cannot be separated. After exploring both the social construction of sex and its sociomaterial constitution, this chapter concludes by taking up two emerging threads in literature exploring the social construction of sex (historically and in the present) that promise to enrich – and complicate – already

existing research by (1) emphasizing the temporal nature of sex (and gender) as specifically developmental objects of biomedical knowledge and intervention and (2) exploring the historical and contemporary co-construction of sex, race, and disability locally and transnationally.

The Social Construction of (Inter) Sex and Gender

Many of those feminists who began to argue for the social construction of sex in the late 1980s and throughout the 1990s did so by returning to the same place from which Oakley had initially adopted the sex/gender distinction and the notion of gender as socially constructed – the medical management of infants with intersex conditions under Dr. John Money’s “Optimal Gender of Rearing” (OGR) treatment model. As multiple scholars have noted (Germon 2009; Hausman 1995; Rubin 2017), Oakley adopted her account of gender, and of the sex/gender distinction from psychoendocrinologist John Money (by way of psychoanalyst Robert Stoller), who developed it with colleagues Joan and John Hampson at Johns Hopkins Medical Center during the 1950s. It is in many ways unsurprising that feminist scholars across disciplines would turn to the management of intersex folks in order to reveal the social construction of sex as naturally dimorphic. Indeed, nowhere is this rendered clearer than in multitude of shifting –and, at times, conflicting – discourses, and practices regarding those bodies which challenge received definitions of male and female sex, both historically and today.

Feminist scholars like biologist Anne Fausto-Sterling (Fausto-Sterling 1985, 1993, 2000), sociologist Suzanne Kessler (1990), and critical theorist Judith Butler (1990) turned their critical attention of the categorization and management of intersex infants under the OGR treatment model, according to which infants with ambiguous genitalia were assigned sex via cosmetically normalizing genital surgeries and sterilizing gonadectomies. These feminist critics called into question the presumed naturalness of dimorphic sex that justified the pathologization of intersex bodies, and their management with invasive, experimental, and irreversible surgeries at the sake of reproductive capacity, and often later sexual sensation – and performed on individuals unable to provide informed consent. They argued that treatment recommendations were often guided by heterosexist norms regarding physical properties (e.g. penile length and vaginal capacity for penetration), as well as gendered behaviors (e.g. aggression and sexual potency for boys, and “reproductive/sexual-receptive potential for girls”) (Dreger and Herndon 2009: 204). Further, clinical capacity to shape bodies and behaviors in coherence with these norms often played a greater role in decisions regarding sex assignment than biological indicators. These early feminist academic critics were quickly joined by intersex activists (Chase 1998, 1999) and bioethicists (Crouch 1998; Dreger 1998, 2000) who argued that under OGR the bioethical principles of autonomy, beneficence, and non-maleficence were routinely violated for the sake of maintaining the fallacy of naturally binary sex. Historians of science and medicine situated contemporary biomedical discourse and practice with its conditions of possibility. These historical analyses outlined changes in the macro conceptualization of sexual difference in the West from antiquity until the eighteenth century (Laqueur 1990); tracked shifts in clinical practices (and the logics underwriting them) in response to technologically driven redefinitions of the “truth” of binary sexual difference during the nineteenth and twentieth centuries (Dreger 2000); and revealed the various sociocultural and material forces that served to shape the emergence and development of those disciplines central to the science and management of sex difference such as endocrinology (Oudshoorn 1994), cytology and chromosomal analysis (Richardson 2012, 2013), and neuroscientific studies of brain organization theory (Fine 2010; Jordan-Young 2010).

While this section shall devote itself to unfurling some of this narrative of the social construction of sex in humans that these (and many other) feminist scholars began articulating in the 1980s, such a summary is necessarily incomplete. This is because the discourses and practices it

captures (as well as the discourses and practices about those discourses and practices) are themselves multiple and partial, contested and contestable – as all discourses and practices are. Recent feminist contributions have served to complicate and enrich this narrative, refining earlier analyses of historical and contemporary (re)definitions of both normal and abnormal sex (and gender) (Downing et al. 2015; Mak 2012; Reis 2009; Repo 2016; Rubin 2017). These interventions have deepened feminist understanding of sex as socioculturally and materially constructed, exposing the plethora of social norms, practices, knowledges, technologies, bureaucracies, institutions, and capacities implicated in its production and maintenance as binary and natural. Indeed, within biology, male and female sex is determined solely on the basis of gamete size – those members of a species who produce the smaller gametes (“sperm”) are identified as males, whereas those who produce the larger gametes (“eggs”) are the females (Roughgarden 2004: 24). However, even this distinction is acknowledged to be a convention, given that all the members of some species of algae, fungi, and protozoans produce the same size gametes. In these cases, the species is divided into genetic groups known as “mating types” (see Roughgarden 2004: 23–24).

In *Making Sex: Body and Gender from the Greeks to Freud*, Thomas Laqueur (1990) argued that Western understandings of sexual difference were radically reconstituted during the eighteenth century with the introduction of a “two-sex” model of sexual difference, and meaningfully revised histories of sex, and of the body in the process. Prior to this, Laqueur argued, Western thinking and practice was dominated by a “one-sex” model of sexual difference, according to which women were presumed to have the same sexual anatomy as men; however, that anatomy was inverted, remaining internal due to their lack of heat. Men, on the other hand, had sufficient heat to develop their genitalia outward, rendering them the more perfect sex. This “one-sex” was supplanted by a “two-sex” model, however, according to which the sexed bodies of women and men were considered to be two unique, oppositional, and incommensurate types. Laqueur identified the emergence (and persistence) of the “two-sex” model with modernity, which demanded “a single, consistent biology as the source and foundation of masculinity, and femininity” (Laqueur 1990: 61).

Laqueur’s history of the emergence and eventual dominance of the “two-sex” model over the “one-sex” has been critiqued in terms of both its specifics and, more recently, with regard to his general thesis (King 2013). Nonetheless, the clear evidence Laqueur provided for the social construction of sex was – as King notes – immensely appealing (King 2013: 6). Further, Laqueur’s account deeply impacted not only the history of sexual difference, but of the body more generally. King’s (2013) argument that there was no clear moment in the eighteenth century when the “two-sex” model usurped the “one-sex,” but rather that the two logics of sexual difference have co-existed since antiquity serves to complicate this initial history in a generative fashion. While the social construction of sex remains clear, these arguments highlight the contingent, and local nature of our sexual concepts, in their multiplicity. Conflicting logics of sexual difference, as well as interpretations of them, can (and often do) circulate simultaneously.

Dreger (1998) further elaborates this history, documenting shifts in biomedical definitions of sex (now conceptualized as naturally, and oppositional dimorphic) following the emergence of biology and clinical medicine as disciplines in the nineteenth century. Dreger tracks the evolution of biomedical definitions of the “truth” of sex difference (and practices regarding it) in response to technological advances in medicine, such as advancements in microscopy, and the increased availability of anesthetic. The introduction of the Klebsian, gonad-based system of sexual difference in 1876 ushered in the “Age of Gonads,” argues Dreger, wherein the truth of sex could be found in gonadal tissue. It was already clear that both external genitalia and internal reproductive structures could be ambiguous. The Klebsian system preserved sex as naturally binary at a time when technology could not allow for the performance of living biopsies of gonadal tissue, such that “true hermaphrodite” could exist only in death. The capacity for increasingly specific elaboration of the

body only served to reveal the instability of binary sex, as clinicians found themselves faced with living “true hermaphrodites,” and gonadal tissue that was neither testicular nor ovarian. Dreger argues that the “Age of Gonads” gave way to the “Age of Conversion” with John Money’s introduction of gender via the OGR treatment model in the 1950s, during which those with intersex conditions are surgically assigned a sex, and medically normalized in accordance with predicted future gender.

With the “Age of Conversion” then, the truth of sex becomes “optimal” gender – that is, the gender that can reliably be “constructed” (Dreger 2000; Kessler 1990, 1998), or “secured” (Clune-Taylor 2019) – by medical means. This required not only a theory of gender distinct from sex and irreducible to it, and of its acquisition, but also the development of particular biomedical disciplines, providing clinicians with the knowledge and technical capacity for normalizing the body, which Hausman (1995) argues is necessary for the emergence of gender as such. The development of those fields of biomedicine that came to facilitate the normalization of atypically sexed bodies (such as embryology, endocrinology, and genetics) only served to emphasize the instability of physical sex (Germon 2009: 33).¹ Further, advances in surgical techniques made during World War II meant that clinicians found themselves more capable physically normalizing intersex bodies than ever before, yet more uncertain of how to justify it. The solution to the “problem” of intersex management was provided by Money through the OGR treatment model, and the account of gender and of its development that model introduced.

Admittedly, Oakley’s account of gender and of the sex/gender distinction is something of a reduction of Money’s, who has been characterized as both the epitome of a social constructionist *and* as biological determinist who turned to environmental influences when it suited him (Rogers and Walsh 1982) – and much maligned for both views.² More recent feminist analyses of his work have provided a far more nuanced account of Money’s model as interactionist regarding gender and its development in a revolutionarily complex manner for his time (Downing, Morland, and Sullivan 2015; Germon 2009; Hausman 1995; Karkazis 2008; Rubin 2017). However, this research has also shown his model to problematically presume both the natural dimorphism of gender (if not sex) and the “sedimentation” of gender within the brain after some critical period in development (Sullivan 2015). Further, Money has been accused by multiple scholars of holding an additive “biosocial” position rather than a truly interactionist one, insofar as it fails to consider how biological and social variables work in tandem, affecting the character of their respective influences beyond amount (Doell and Longino 1988; Jordan-Young 2010).

On the basis of his so-called “hermaphroditic” research begun during his doctoral program in clinical psychology at Harvard, Money “abandon[ed] the unitary definition of sex as male or female” as it was clear to him that the multiple variables of sex – chromosomes, gonads hormones, internal reproductive structures, and external genitalia – could develop independently of one another (Money 1995: 21). Not only was the assumption that sex could be “read” off the body via genitalia incorrect, but further, genitalia could itself be ambiguous. Moreover, none of these variables clearly correlated with gender which, as Money initially introduced it, encapsulated what we would today distinguish as gender identity, gender role or behavior and sexual orientation, though this would eventually be refined to Gender Identity/Role or G-I/R. Because gender corresponded to sex of rearing (or rather, the gender one is socialized as) for 95% of patients studied by Money and the Hampsons, the group identified sex of rearing as of primary importance in gender development, perhaps of even greater importance than biological variables given the stability of gender once “learned” (Clune-Taylor 2016; Karkazis 2008; Rubin 2017; Sullivan 2015). However, despite evidence to the contrary within his own research, he also posited sex-typical genitalia as necessary to “normal” psychosexual development as a man or a woman – ostensibly to reinforce gender socialization and identity for those doing the socializing and those being socialized (Feder 2014; Holmes 2008; Karkazis 2008). Subsequently, the treatment model developed by Money and

his colleagues stressed early surgical assignment and unambiguous, binary gender socialization, boiling down his theoretically interactionist account to a social constructionist one in practice, undergirded by what Holmes (2008) refers to as Money's "genital determinism."

Money, then, is in many ways the first to clearly recognize and articulate the social construction of sex and the fallacy of its naturalization as dimorphic. Furthermore, with the introduction of gender, Money manages to – once again – renaturalize sex by presuming the naturalness of binary masculine and feminine genders with regard to which sex could be both indexed and created. In this sense, Money doesn't merely propose sex as "gender all along" 35 years prior to Butler (1990), but literally constitutes it as such, giving rise to the tripartite configuration of sex-gender-sexuality underwriting that grid of intelligibility known as the "heterosexual matrix." For this reason, gender has been multiply characterized as technology of power: as "a powerfully stabilizing factor at a time when technology was increasingly undermining" physiologically binary sex (Germon 2009: 62), as "a solution to the uncertainty of any absolute somatic sex" (Germon 2009: 35), as "a diagnostic category and treatment protocol" allowing clinicians "to predict and . . . literally fashion the sex [intersex patients] were 'supposed' to have all along" (Rubin 2017: 892), and as "the most recent historical apparatus to contain the body within a political economy of dimorphic sexual difference" (Germon 2009: 62). It also speaks to the character of sociocultural investment white supremacist, and gender normative, reproductive heterosexuality, reliant – as it is – on naturally dimorphic sex.

Over 30 years of feminist academic and intersex activist critique of the biomedical management of intersex infants under the OGR treatment model led to the introduction of the revised "Disorders of Sex Development" (DSD) treatment model by the American and European Pediatric Endocrine Associations in 2006, which was rapidly adopted internationally (Hughes 2010; Lee et al. 2006). After so many years of scholarship and activism specifically calling for the depathologization of intersex conditions, the DSD treatment model has proven to be quite controversial among intersex folks and their families, academics, and clinicians. Much of that controversy has centered on the pathologizing nature of the nomenclature, the processes out of which the treatment model and systems of nomenclature emerged, as well as the continued management of intersex infants under DSD with genital normalizing surgeries.³ Empirical evidence indicates that not much has changed practically speaking under DSD, insofar as the frequency with which genital normalizing surgery is performed seems to be the same (if not higher) than it was under OGR (Creighton et al. 2014). However, insofar as the theory of gender development underwriting clinical recommendations made under DSD has changed, the treatment model achieves yet another reconstitution of our definitions of both normal and abnormal sex (and gender). I have argued that whereas OGR was underwritten – at least in practice – by a socially constructionist account of gender development treatment recommendations under DSD are based on biologically determinist account of gender development known as brain organization theory, which posits that gendered patterns of identity, behavior, cognition, and desires (including sexual ones) are the result of "organizing" effects of hormones on the brain in utero (Clune-Taylor 2019). Sex assignment is thus heavily influenced now by predictions regarding "brain gender" on the basis of assumptions regarding prenatal hormone exposure – something which cannot be tested directly.

Feminist scholars across disciplines have heavily critiqued brain organization theory for being both theoretically suspect and empirically inadequate (most notably Fine 2010; Jordan-Young 2010). Underwriting brain organization theory is the assumption that the well-established differentiating effects of prenatal hormones on genital development are mirrored within the brain, such that the same mechanism results in the sexual differentiation of "both sets" of organs required for reproduction – the brain and the genitalia (Jordan-Young 2010: 21). However, as Jordan-Young (2010) has noted, there are multiple, stark dissimilarities between these organs. First, brains are nowhere near as dichotomous as genitalia; while the latter can be reliably be sorted into male-typical

and female-typical types by observers unaware of the sex of the individual they came from, this is not the case for the former (Jordan-Young 2010: 49). Indeed, the level of neuroanatomical dimorphism exhibited by human brains remains the subject of live debate, as does the question of whether or not “distinctively gendered patterns of brain function” exist at all (Jordan-Young 2010: 49; Rippon et al. 2014). For the majority of “social, cognitive, and personality variables,” there is far more overlap than divergence between genders (Rippon et al. 2014: 4). Furthermore, brain development and genital development are deeply disanalogous. Human genitalia differentiate between the 7 and 17 weeks gestation and – barring intervention – those structures will develop in size, but remain generally fixed in form across the lifespan (Yiee and Baskin 2010). The human brain, on the other hand, is grossly underdeveloped at birth, and its developmental period is a markedly dynamic one, highly dependent on biological and social inputs, and characterized by atypically high levels of plasticity across the lifespan (Jordan-Young 2010; Rippon et al. 2014; Yiee and Baskin 2010). Indeed, the brain is – uniquely – “permanent[ly] plastic,” undermining the notion that gendered neuroanatomical and functional differences are as fixed as brain organization theory posits (Rippon et al. 2014: 4). This leads Rippon et al. to argue that the principles that emerge from surveying gendered neurological research do not emphasize difference, but are overlap, mosaicism, contingency, and entanglement, and that these principles should guide and inform research design, analysis, and interpretation (Rippon et al. 2014: 2).

The relocation of the truth or – at the very least, the best biological indicator – of gender in gendered neuroanatomical and cognitive differences brings about an interesting collapse of the distinction between gender and sex at the level of the brain, revealing – yet again – the circular construction of both. If gendered differences in forms of cognition (such as language processing (Kaiser et al. 2009) or spatial rotation) are posited to be the result of sexed neuroanatomical differences, then the “black box” that is the brain becomes the site of both sex and gender. Further, the level of plasticity exhibited by the brain as pointed to in Rippon et al.’s survey or in Feng, Spence, and Pratt’s (2007) research calls into question whether neuroanatomical differences are what determine functional differences, or whether they result from them. The complex, dynamic, interactive, and socioculturally dependent nature of neurological development via which the “the social phenomenon of gender is literally incorporated, shaping the brain and endocrine system,” to become “part of our cerebral biology” is a clear example of the sociomaterial constitution of sex – the second sense in which sex is socially constructed (Kaiser et al. 2009: 57; Rippon et al. 2014: 4). Indeed, the fact that those bodily “sexed” (or is it “gendered”?) differences which we take to be indicative of gender (or is it “sex”?) are shaped by the world undermines whatever distinctions between sex/gender and nature/culture we might hope to maintain.

The Sociomaterial Constitution of Sex (and Race)

Since the 1980s, feminist scholars across disciplines have shown that physical and biologically gendered features are materially affected by social practices, shaping aspects of “sex, itself.” The uniquely dynamic and socially dependent nature of neurological development renders the brain a privileged site for drawing the sociomaterial constitution of sex into view. It is often hard to imagine other seemingly more stable sexed characteristics might be so open to environmental inscription. However, feminists have been drawing connections between bodily sexed differences and social norms and practices since the early 1980s, and this research will only proliferate as science elucidates new mechanisms via which environmental influences become embodied (e.g. direct and indirect epigenetic effects), and as sociocultural investment in sexual difference persists. For example, Jagger (1983) argued that the naturalized difference in body size between men and women could be the result of the latter group receiving less food and resources due to a cultural devaluation of their gender/sex. Fausto-Sterling (2005) has explored the sociomaterial constitution

of sex differences extensively, identifying the effects of socio-culturally and temporally specific gendered norms and practices on bone development, and arguing that sexed differences in muscularity so frequently identified with masculinity and femininity are not natural, and could be closed with shifts in sociocultural norms regarding activity and muscularity, as well as increased access to muscle building exercises (Fausto-Sterling 1985). She further applies her general claim – “that specific anatomies and physiologies are not fixed traits,” but rather, “emerge over the lifecycle as a response to specific lived lives” – to race, undermining its use a typological category in medical research, and revealing its material co-constitution with sex/gender (Fausto-Sterling 2008: 658).

Motivated by concerns regarding increasing interest in genetic or genomic explanations for a range of problems (“from alcoholism to gender and racial health disparities”) at the expense of insights from the social sciences, as well as the continued “use and abuse of concepts of race in medicine,” Fausto-Sterling reviews hundreds of papers on race/gender and bone health (a field in which race and gender are inextricably entangled) to argue against the use of race as a typological kind (Fausto-Sterling 2008: 657–658). Not only is race, and hierarchies of it, socially constructed in medical research, through the persistent (and often inconsistent) use of racial and ethnic categories, but their use persists despite researchers’ frequent inability to identify significant differences between racial groups. Moreover, the bare facts of the sociomaterial constitution of the (sexed, gendered, raced, abled) body – that is, that the “social *produces* the biological in a system of constant feedback between body and social experience” – render race a “poor object of study because it beckons us to structure problems in terms of nature *versus* nurture” (Fausto-Sterling 2008: 658, 683). Such a framing (in which, importantly, “time is held constant”) is “ultimately futile,” argues Fausto-Sterling, who advocates for the adoption of approaches from developmental and dynamic systems theories, emphasizing the dynamic interplay of the social and the biological over time (Fausto-Sterling 2005, 2008: 683). Thus, all sexed and racialized physiological differences – even our most stable, and most taken for granted – emerge out of, against, and through the environments in which they develop. As a result, the development of all physiological traits and their environment cannot – just like all other terms operationalized to map the nature/culture binary – be disentangled.

Emerging Engagements with the Social Construction of Sex

Feminists are still uncovering the myriad of ways in which sex is socially constructed across a variety of disciplines, and this work will continue to have import for feminist philosophers of science. One way to productively refine analyses of contemporary intersex management, and subsequently of sex and gender in themselves, is to reconfigure both as temporal (and temporally) constituted objects. Another way is to further elaborate the co-construction of sex with other axes of identity – particularly race and disability. Of course, even these two directions of analyses are themselves entangled for, as this work collectively reveals, individuals and populations are, necessarily – and with great local variation – sexed, racialized, and disabled both in and across time.

Sex and gender are natureculture in both the socially constructed and sociomaterially constituted senses. As a result, both our concepts of them and their instantiations in the world as embodied objects available for study and intervention are necessarily temporally specific. Further, recent research has highlighted the importance of their temporal dimension in their biomedical constitution as developmental objects. Fausto-Sterling’s recent work on sex/race and bone health (Fausto-Sterling 2005, 2008), as well as gender development (Fausto-Sterling, Coll, and Lamarre 2012), emphasizes the need for specifically development approaches which examine health and disease patterns (including gendered and racialized ones) across the lifespan. As Sullivan (2015) points out, the temporality of gender development plays an important role in Money’s account

which unjustifiably presumes the “sedimentation” of binary brain gender during some critical developmental window. Similarly, brain organization theory posits a critical (prenatal) period of development as key to “sexing” the brain, and even critical feminist researchers have begun analyzing gender and sexual orientation developmentally. Moreover, I argue that the primary aim of intersex management is best understood as securing a specifically *cisgendered future* for an intersex individual, referring to a normalized trajectory of development over the lifespan across which a variety of sexed and gendered characteristics are maintained in “coherent” alignment (Clune-Taylor 2019). I use this term specifically to differentiate it from one’s self-identification – though self-identification is one of the multiple sexed and gendered variables that make up cisgendered life – and to emphasize the social construction of this trajectory of development as cisgendered (and thus normal), discursively and materially. This account productively reconfigures cisgendered life as a developmental achievement, reliant on a variety of discursive, technological, and material achievements.

Kimberlé Crenshaw’s introduction of intersectionality analyses rendered all subsequent work that failed to take seriously the co-constitution of gendered and racialized identity and the interlocking nature of oppression in some important sense of the term incomplete (Crenshaw 1989, 1991). Beyond this, Shelley Tremain’s turn to intersex management in 2001s “On the Government of Disability” to reveal the social construction of both impairment *and* disability – another nature/culture binary dependent pair – not only gave rise to the field of critical disability studies but also highlighted the importance of exploring impairment, disability, and technologies of power implicated in the social constitution of bodies as sex/gendered and racialized. While some work – like that of Fausto-Sterling (2008) or, even earlier, Markowitz’s (2001) “Pelvic Politics: Sexual Dimorphism and Sexual Difference” – has taken an intersectional approach to examining sexual difference, such analyses are rare in general with few seriously engaging disability, leaving many in feminist science studies to bemoan the relative lack of substantive intersectional analyses (Subramaniam 2009). However, scholarship that takes seriously both the contemporary and historical social co-construction of sex, race, and disability has begun to emerge, addressing important lacunae in the literature. This research has only served to reinforce the necessity of intersectional approaches to more capaciously and more accurately elaborating the co-constitution of sex, gender, race, and disability, both locally and transnationally. Further, it has highlighted the generative potential of a multiplicity of histories and disciplinary approaches to understanding the various biopolitical functions of sex/gender, race, and disability both historically and in the present. Indeed, as Markowitz noted “the ideology of sex/gender difference itself” does not “rest not on a simple binary of opposition between male and female but rather on a scale of racially coded degrees of sex/gender difference culminating in the manly European man and the feminine European woman” (Markowitz 2001: 391). That this “scale” was itself generally articulated in terms of pathology or abnormality only speaks to the historical emergence of sexed/gendered and racialized differences out of intimately entangled histories of colonialism, slavery, scientific racism, and clinical medicine, such that analyses of their social construction, in any sense of the term, must carefully be attended to and situate themselves in relation to these legacies.

C. Riley Snorton’s *Black on Both Sides: A Racial History of Trans Identity* (2017) critically re-situates the historical emergence of gynecology as a discipline within the make-shift hospital/slave quarters of Dr. J. Marion Simms. The inventor of multiple gynecological instruments and procedures (such as the cure for vesicovaginal fistulae), Simms developed and refined both via experiments on unanesthetized slaves (most notably Anarcha, Betsey, and Lucy) (Snorton 2017). Snorton’s exploration of the co-constitutive emergence of blackness and transness begins from Spiller’s claims regarding the “ungendering” of black folks by slavery (rendering heteronormative gender identity inaccessible to them), complicating and expanding upon traditional narratives regarding the birth of the gender (and the gender clinic) in the 1950s at Johns Hopkins

Medical Center (such as that outlined here) (Snorton 2017). Kyla Schuller's *The Biopolitics of Feeling: Race, Sex, and Science in the Nineteenth Century* similarly disrupts both hegemonic and feminist accounts of sex and racial difference, as well as "new" materialist hopes regarding the liberatory potential of analyses emphasizing the "plasticity, porosity, and vitality" of matter (Schuller 2018: 4). To counter traditional accounts regarding the dominance of biologically determinist notions of race during the nineteenth century, Schuller argues that sentimentalism played an unacknowledged biopolitical role in the nineteenth century, mingling with scientific discourse to consolidate political power in the "feeling body," and giving rise to a "palimpsestic model of race before genetics, in which racial status indexes the impressions that occur over the life span of individuals and the evolutionary time of races" (Schuller 2018: 12). This "sentimental biopolitics of life" distributed sex/gendered and racialized individuals along the great chain of being via their relative impressability – or the body's "energetic accumulation of sensory impressions and its capacity to regulate its engagement with the world outside the self" (Schuller 2018: 3). Subsequently, this dispositif "regulated the circulation of feeling through the population and delineated differential relational capacities of matter and, therefore the potential for evolutionary progress, as the modern concepts of race, sex, and species," such that race, sex, and species came to define a "body's relative claims to life on the basis of perceived proportional vitality and inertia of the sensory and emotional faculties" (Schuller 2018: 5–6). Importantly, Schuller highlights that this "racial history of sexuality was a pathway for white women's political agency" citing the writings of Drs. Mary Blackwell (1821–1910) and Elizabeth Walker (1832–1919) – the first and second women to graduate with medical degrees in the Western world, respectively – who saw the bodies of "civilized" white women as "the culmination of racial potential" (Schuller 2018: 132).

As she acknowledges, Schuller's account disrupts "some of our most cherished scholarly and popular narratives," including binary distinctions between "social and organic processes; sentimental and scientific accounts of ontology and reason; biological and cultural interpretations of racial status; hegemonic and feminist versions of sex difference; and determinist and vitalist accounts of the capacities of matter" (Schuller 2018: 3). Moreover, in disrupting more traditional, biologically determinist accounts of race, sex, and species, Schuller complicates new materialist hopes for the political potential of "new" notions of "lively matter," identifying the ways in which new materialisms "generally animate racial thought" (Schuller 2018: 25–27). Rubin (2017) similarly disrupts traditional feminist engagements with sexual difference in the present, providing a much-needed transnational perspective to work on intersex, and underscoring the importance of diverse feminist perspectives and forms of analysis. In *Intersex Matters: Biomedical Embodiment, Gender Regulation, and Transnational Activism*, Rubin compares Western and transnational analyses of the controversy surrounding South African athlete Caster Semenya, whose sex was called into question after she won a gold medal in the women's 800 meter-dash at the International Association of Athletics Federations (IAAF) World Championship in August 2009 (Rubin 2017: 121–139). He reports that "[n]ot surprisingly" analyses from Western scholars "tended to agree that her treatment reaffirmed the need for intersectional approaches to subjectivity and power," while nonetheless failing to undertake such an approach (Rubin 2017: 134). Rather, the majority of Western analyses tended to frame Semenya's "case" as, centrally, about the social construction of sex and of intersex rights – despite the fact that Semenya herself has never identified as having an intersex condition nor as intersex. This response stood in stark contrast to popular and political reception to Semenya in South Africa following her 2009 win (and the eruption of international controversy regarding her "true sex"), that positioned the athlete as "not only a normatively sexed/gendered subject and proud symbol of South African athletic excellence and national pride, but also as an icon of postcolonial resistance to western domination" (Rubin 2017: 133). This reaction, argues Rubin, reproduced "sex/gender binarism

as part of an effort to mobilize Black Nationalism as a challenge to Western imperialism,” and must be read against “the intersecting eugenic and sexological legacies of colonialism” – legacies that feature, as Neville Hoad writes, the “shameful history of Sarah Baartman who was literally cut up and turned inside out for the world to see” (Hoad 2010: 402; Rubin 2017: 133).⁴ However, Rubin notes that even transnational approaches, which quite rightly highlight the ways in which “national context, racialization, and imperial history overdetermine the visibility and subsequent management of bodies in doubt” – such as, allegedly, Semenya’s – can nonetheless fail to consider the uneven globalization of Western models of medicalizing intersex bodies, and of rights-based intersex movements in their analyses (Rubin 2017: 135). Rubin concludes that there is “no one right way to read” the controversy over Caster Semenya – and indeed, given the myriad of transnational and local discourses, practices, investments, and institutions implicated in the social construction of bodies as of sexed/gendered, racialized, and (dis)abled, it is clear that more “capacious critical readings” are necessary if we hope to more accurately capture the life of folks like Semenya, as well as responses to it.

Meanwhile, emerging research on the sociomaterial co-constitution of gender/sex, race, and disability – such as work on the epigenetic effects of trauma on Black women, or on biological effects of trauma and/or “Adverse Childhood Experiences” (ACES) on women (and men) across races – promises to provide us with more representative accounts of the developmental sexualization, gendering, racialization, and disabling of humans, in all of its dynamic complexity (for example, Pear et al. 2017; Shannon Sullivan 2013). Jasbir Puar’s (2017) *The Right to Maim: Debility, Capacity, Disability* lays out a critical feminist account of disability and strikes me as an articulation of the theoretical core of recent feminist work attempting “decolonize disability.” In this project, Puar situates the constitution of impairment *and* disability within the functions of colonial power and transnational politics, as well as global capitalism and its racialized ecological effects. For example, Puar eerily echoes Tremain (2001) in her articulation of disability as existing “in relations to assemblages of capacity and debility, modulated across historical time, geopolitical space, institutional mandates and discursive regimes,” rather than “a fixed state or attribute” (Puar 2017: xiv). Puar similarly attempts to productively disrupt traditional understandings of disability through the introduction of and an emphasis on the “biopolitics of debilitation” in order to foreground the “slow wearing down of populations instead of the event of becoming disabled” (Puar 2017: xiii–xiv). Puar links the “deliberate debilitation” of populations to the “racializing logics of security,” noting that what counts as disability “is already overdetermined by white fragility on the one side, and the racialization of bodies that are expected to endure pain, suffering, and injury on the other” (Puar 2017: x, xiv).

Interventions like those of Puar (2017), Tremain (2001, 2017), Rubin (2017), Schuller (2018), and Snorton (2017) will only become more necessary for justice-oriented theory and practice as we are increasingly forced to recognize the co-constitutive nature of systems of oppression, both historically and in the present. As Puar notes, more than 50% of police shootings involve disabled folks, and as the twenty-first century continues its march forward, we shall increasingly be called on to wrestle with the disabling (and debilitating) effects of the always already sex/gendered and racialized system, that is, globalized capitalism in the form of climate change (Puar 2017: xii).

Related chapters: 7, 10, 15, 16, 18, 20.

Notes

- 1 For a critique of the timelines offered by Germon (2009) and Hausman (1995), see Mak (2012).
- 2 For an in-depth review of challenges to Money’s position as a social constructionist, see Karkazis (2008: 63–80).
- 3 For more reaction to the DSD nomenclature/treatment model, and its development and adoption, see Davis (2015).
- 4 Sarah Baartman is perhaps better known by the derogatory “the Hottentot Venus.”

References

- Butler, J. (1990) *Gender Trouble: Feminism and the Subversion of Identity*. New York: Routledge.
- Chase, C. (1999) “Rethinking Treatment for Ambiguous Genitalia [WWW Document],” *Pediatric Nursing*, <http://link.galegroup.com/apps/doc/A55577832/AONE?sid=googlescholar> (accessed 20.4.19).
- Chase, C. (1998) “Surgical Progress Is Not the Answer to Intersexuality,” *Journal of Clinical Ethics* 9, 385.
- Clune-Taylor, C. (2019) “Securing Cisgendered Futures: Intersex Management under the ‘Disorders of Sex Development’ Treatment Model,” *Hypatia* 34, 690–712. <https://doi.org/10.1111/hypa.12494>
- Clune-Taylor, C.E. (2016) *From Intersex to Disorders of Sex Development: A Foucauldian Analysis of the Science, Ethics and Politics of the Medical Production of Cisgendered Lives* (PhD Thesis). University of Alberta.
- Creighton, S.M., Michala, L., Mushtaq, I., and Yaron, M. (2014) “Childhood Surgery for Ambiguous Genitalia: Glimpses of Practice Changes or More of the Same?” *Psychology & Sexuality* 5, 34–43. <https://doi.org/10.1080/19419899.2013.831214>
- Crenshaw, K. (1991) “Mapping the Margins: Intersectionality, Identity Politics, and Violence against Women of Color,” *Stanford Law Review* 43, 1241. <https://doi.org/10.2307/1229039>
- Crenshaw, K. (1989) “Demarginalizing the Intersection of Race and Sex: A Black Feminist Critique of Antidiscrimination Doctrine, Feminist Theory and Antiracist Politics,” *University of Chicago Legal Forum* 1989, 139–168.
- Crouch, R.A. (1998) “Betwixt and Between: The Past and Future of Intersexuality,” *The Journal of Clinical Ethics* 9, 372.
- Davis, G. (2015) *Contesting Intersex: The Dubious Diagnosis*. New York: New York University Press.
- Doell, R.G. and Longino, H.E. (1988) “Sex Hormones and Human Behavior: A Critique of the Linear Model,” *Journal of Homosexuality* 15, 55–78. https://doi.org/10.1300/J082v15n03_03
- Downing, L., Morland, I., Sullivan, N. (eds.) (2015) *Fuckology: Critical Essays on John Money’s Diagnostic Concepts* (First Edition). London: University of Chicago Press.
- Dreger, A.D. (2000) *Hermaphrodites and the Medical Invention of Sex*. Cambridge, MA: Harvard University Press.
- Dreger, A.D. (1998) “‘Ambiguous Sex’: Or Ambivalent Medicine? Ethical Issues in the Treatment of Intersexuality,” *The Hastings Center Report* 28, 24. <https://doi.org/10.2307/3528648>
- Dreger, A.D. and Herndon, A.M. (2009) “Progress and Politics in the Intersex Rights Movement: Feminist Theory in Action,” *GLQ: A Journal of Lesbian and Gay Studies* 15, 199–224. <https://doi.org/10.1215/10642684-2008-134>
- Fausto-Sterling, A. (2008) “The Bare Bones of Race,” *Social Studies of Science* 38, 657–694.
- Fausto-Sterling, A. (2005) “The Bare Bones of Sex: Part 1—Sex and Gender,” *Signs: Journal of Women in Culture and Society* 30, 1491–1527. <https://doi.org/10.1086/424932>
- Fausto-Sterling, A. (2000) *Sexing the Body: Gender Politics and the Construction of Sexuality*. New York: Basic Books.
- Fausto-Sterling, A. (1993) “The Five Sexes: Why Male and Female Are Not Enough,” *Sciences* 33, 20. <https://doi.org/10.1002/j.2326-1951.1993.tb03081.x>
- Fausto-Sterling, A. (1985) *Myths of Gender: Biological Theories about Women and Men* (Second Edition). New York: Basic Books.
- Fausto-Sterling, A., Coll, C.G., Lamarre, M. (2012) “Sexing the Baby: Part 2 Applying Dynamic Systems Theory to the Emergences of Sex-related Differences in Infants and Toddlers,” *Social Science & Medicine* 74, 1693–1702. <https://doi.org/10.1016/j.socscimed.2011.06.027>
- Feder, E.K. (2014) *Making Sense of Intersex: Changing Ethical Perspectives in Biomedicine*. Bloomington: Indiana University Press.
- Feng, J., Spence, I., and Pratt, J. (2007) “Playing an Action Video Game Reduces Gender Differences in Spatial Cognition,” *Psychological Science* 18, 850–855. <https://doi.org/10.1111/j.1467-9280.2007.01990.x>
- Fine, C. (2010) *Delusions of Gender: How Our Minds, Society, and Neurosexism Create Difference*. New York: W. W. Norton & Company.
- Germon, J. (2009) *Gender: A Genealogy of an Idea*. New York: Palgrave Macmillan.
- Haraway, D.J. (2003) *The Companion Species Manifesto: Dogs, People, and Significant Otherness*. Chicago, IL: University of Chicago Press. <https://doi.org/10.5749/minnesota/9780816650477.001.0001>
- Hausman, B.L. (1995) *Changing Sex: Transsexualism, Technology, and the Idea of Gender*. Durham, NC: Duke University Press.
- Hoad, N. (2010) “‘Run, Caster Semenya, Run!’ Nativism and the Translations of Gender Variance,” *Safundi* 11, 397–405. <https://doi.org/10.1080/17533171.2010.511785>
- Holmes, M. (2008) *Intersex: A Perilous Difference*. Selinsgrove, PA: Susquehanna University Press.

- Hughes, I.A. (2010) "The Quiet Revolution: Disorders of Sex Development," *Best Practice and Research. Clinical Endocrinology and Metabolism* 24, 159.
- Jagger, A. (1983) "Human Biology in Feminist Theory: Sexual Equality Reconsidered," in Gould, C. (ed.) *Beyond Domination: New Perspectives on Women and Philosophy*. Lanham, MD: Rowman & Littlefield Publishers, Inc., 21–42.
- Jordan-Young, R.M. (2010) *Brain Storm: The Flaws in the Science of Sex Differences*. Cambridge, MA: Harvard University Press.
- Kaiser, A., Haller, S., Schmitz, S., and Nitsch, C. (2009) "On Sex/gender Related Similarities and Differences in fMRI Language Research," *Brain Research Reviews* 61, 49–59. <https://doi.org/10.1016/j.brainresrev.2009.03.005>
- Karkazis, K. (2008) *Fixing Sex: Intersex, Medical Authority, and Lived Experience*. Durham, NC: Duke University Press.
- Kessler, S.J. (1998) *Lessons from the Intersexed*. New Brunswick, NJ: Rutgers University Press.
- Kessler, S.J. (1990) "The Medical Construction of Gender: Case Management of Intersexed Infants," *Signs: Journal of Women in Culture and Society* 16, 3–26. <https://doi.org/10.1086/494643>
- King, H. (2013) *The One-Sex Body on Trial: The Classical and Early Modern Evidence*. Farnham, UK: Ashgate.
- Laqueur, T. (1990) *Making Sex: Body and Gender from the Greeks to Freud*. Cambridge, MA: Harvard University Press.
- Lee, P.A., Houk, C.P., Ahmed, S.F., and Hughes, I.A., in collaboration with the participants in the International Consensus Conference on Intersex organized by the Lawson Wilkins Pediatric Endocrine Society and the European Society for Paediatric Endocrinology (2006) "Consensus Statement on Management of Intersex Disorders," *Pediatrics* 118, e488–e500. <https://doi.org/10.1542/peds.2006-0738>
- Mak, G. (2012) *Doubting Sex Inscriptions, Bodies and Selves in Nineteenth-Century Hermaphrodite Case Histories*. Manchester: Manchester University Press.
- Markowitz, S. (2001) "Pelvic Politics: Sexual Dimorphism and Racial Difference," *Signs* 26, 389–414.
- Money, J. (1995) *Gendermaps: Social Constructionism, Feminism and Sexosophical History*. London: Bloomsbury Academic.
- Oudshoorn, N. (1994) *Beyond the Natural Body: An Archeology of Sex Hormones*. New York: Routledge.
- Pear, V. A., Petito, L. C. and Abrams, B. (2017) "The Role of Maternal Adverse Childhood Experiences and Race in Intergenerational High-Risk Smoking Behaviors." *Nicotine & Tobacco Research* 19(5), 623–630. <https://doi.org/10.1093/ntr/ntw295>
- Pitts-Taylor, V. (2016) *The Brain's Body: Neuroscience and Corporeal Politics*. Durham, NC: Duke University Press.
- Puar, J.K. (2017) *The Right to Maim: Debility, Capacity, Disability*. Durham, NC: Duke University Press.
- Reis, E. (2009) *Bodies in Doubt: An American History of Intersex*. Baltimore, MD: Johns Hopkins Press.
- Repo, J. (2016) *The Biopolitics of Gender*. New York: Oxford University Press.
- Richardson, S.S. (2013) *Sex Itself: The Search for Male and Female in the Human Genome*. Chicago, IL: University of Chicago Press.
- Richardson, S.S. (2012) "Sexing the X: How the X Became the 'Female Chromosome'," *Signs: Journal of Women in Culture and Society* 37, 909–933. <https://doi.org/10.1086/664477>
- Rippon, G., Jordan-Young, R., Kaiser, A., and Fine, C. (2014) "Recommendations for Sex/gender Neuroimaging Research: Key Principles and Implications for Research Design, Analysis, and Interpretation," *Frontiers in Human Neuroscience* 8, 1–13. <https://doi.org/10.3389/fnhum.2014.00650>
- Rogers, L. and Walsh, J. (1982) "Shortcomings of the Psychomedical Research of John Money and Co-workers into Sex Differences in Behavior: Social and Political Implications," *Sex Roles* 8, 269–281. <https://doi.org/10.1007/BF00287311>
- Roughgarden, J. (2004) *Evolution's Rainbow: Diversity, Gender, and Sexuality in Nature and People*. Berkeley: University of California Press.
- Rubin, D.A. (2017) *Intersex Matters: Biomedical Embodiment, Gender Regulation, and Transnational Activism*. Albany: State University of New York Press.
- Schuller, K. (2018) *The Biopolitics of Feeling: Race, Sex, and Science in the Nineteenth Century*. Durham, NC: Duke University Press.
- Snorton, C.R. (2017) *Black on Both Sides: A Racial History of Trans Identity*. Minneapolis: University of Minnesota Press.
- Subramaniam, B. (2009) "Moored Metamorphoses: A Retrospective Essay on Feminist Science Studies," *Signs: Journal of Women in Culture and Society* 34, 951–980. <https://doi.org/10.1086/597147>
- Sullivan, N. (2015) "The Matter of Gender," in Downing, L., Morland, I., and Sullivan, N. (eds.) *Fuckology: Critical Essays on John Money's Diagnostic Concepts* (First Edition). London: University of Chicago Press, 19–40.

- Sullivan, S. (2013) "Inheriting Racist Disparities in Health: Epigenetics and the Transgenerational Effects of White Racism," *Critical Philosophy of Race* 1(2), 190–218.
- Tremain, S. (2017) *Foucault and Feminist Philosophy of Disability*. Ann Arbor: University of Michigan Press.
- Tremain, S. (2001) "On the Government of Disability," *Social Theory and Practice* 27, 617–636. <https://doi.org/10.5840/soctheorpract200127432>
- van Anders, S.M. (2015) "Beyond Sexual Orientation: Integrating Gender/Sex and Diverse Sexualities via Sexual Configurations Theory," *Archives of Sexual Behavior* 44, 1177–1213. <https://doi.org/10.1007/s10508-015-0490-8>
- van Anders, S.M. and Dunn, E.J. (2009) "Are Gonadal Steroids Linked with Orgasm Perceptions and Sexual Assertiveness in Women and Men?" *Hormones and Behavior* 56, 206–213. <https://doi.org/10.1016/j.yhbeh.2009.04.007>
- Yice, J.H. and Baskin, L.S. (2010) "Penile Embryology and Anatomy," *The Scientific World Journal* 10, 1174–1179. <https://doi.org/10.1100/tsw.2010.112>

Further Reading

- Gill-Peterson, J. (2018) *Histories of the Transgender Child*. Minneapolis: University of Minnesota Press.
- Holmes, M. (ed.) (2016) *Critical Intersex*. New York: Routledge.
- Latham, J. R. (2016) "Trans Men's Sexual Narrative-Practices: Introducing STS to Trans and Sexuality Studies," *Sexualities* 19(3), 347–368.
- Latham, J. R. (2019) "Axiomatic: Constituting 'Transsexuality' and Trans Sexualities in Medicine," *Sexualities* 22(1–2), 13–30.
- Plemons, E. (2017) *The Look of a Woman: Facial Feminization Surgery and the Aims of Trans-Medicine*. Durham, NC: Duke University Press.