

The Technical Capacities of the Body

Assembling Race, Technology, and Transgender

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Abstract This essay travels with the testosterone molecule to pursue a theory of racialized and trans embodiment as technical capacities of all bodies, not only of the trans-of-color subject subordinated to racially normative and gender-normative white and cisgender bodies (though the hormone molecule is implicated in those relations). It focuses on technology to think race and transgender *together*, from a common conceptual ground, rather than as separate strands of thought recombined through an intersectional or cyborg hybridity framework.

Keywords transgender; body; race; hormone therapy; technology; capacity

When the US Congress added synthetic testosterone to Schedule III of the Controlled Substances Act in 1990, it did so avowedly to curb sports doping. But as Toby Beauchamp (2013: 59) points out, Congress's attempt to secure and regulate the bodily mobilities that synthetic hormones enable is a case study in transgender studies' importance to questions that implicate *all* bodies in their biopolitical investment by the state. Beauchamp asks us to consider, in addition to synthetic hormone therapy for trans¹ bodies, what "a discussion ostensibly about *inanimate* objects—chemical substances—tell[s] us about the gendered, racial, and national stakes of hormone regulation" (59; emphasis added). I begin with an extension of this insight, by revaluating the ostensible inanimateness of the chemical molecule. Congress ranks synthetic hormones relatively low on what could be called the national animacy hierarchy, codifying the hormone molecule as a substance analogous to recreational drugs: able to be abused but possessing no relevant agency prior to human consumption. If synthetic testosterone is treated as a technical object, however, we can ask different questions of it: what dynamism inheres in the actual molecule? How and at what scales does its circulation increase or decrease the capacities of various bodies to affect and be

affected (Deleuze and Guattari 1987: 283–84)? And how do the testosterone molecule's material itineraries reshape transgender studies' understanding of the relation of race to transgender through the lens of technology?

The itineraries of the testosterone molecule as a technology trace something emergent, something greater than its literal sum total—they trace an ecology. An eco-logic of testosterone attends to the Greek root of ecology, *oikos*, meaning a home, natural habitat, or milieu (Guattari 1989: 147). The testosterone molecule has many homes, each one occupied simultaneously and yet inhabited differently. It circulates in the flesh of the human body, modulating the endocrine system; it circulates as a politicized and regulated medicine in an apparatus of institutional healthcare, access to which is severely unevenly distributed in the United States; it circulates on markets both licit and illicit, commodified and trafficked; it circulates as a linguistic signifier, caught in the vocabulary of trans subjectivity and politics; and it circulates as a chemical index of environmental toxicity, one among countless drugs flushed through the industrial water system into rivers and oceans (see Ward and Blum 2012; Don, Mendoza, and Pritchard 2008). As those endocrine disruptors accumulate in water, plant, and animal bodies, eventually reingested by humans, the molecule does not so much restart a linear cycle as act differentially—ecologically: the hormone molecule never quite strikes each of its homes in the same way, and both the technical object and its milieu are continuously transformed by each iteration of its travels.

Not all of these itineraries are enabled by human action or even by the unintended effects of human agency. Indeed, some of testosterone's ecological homes are built by the actions of so many countless molecules themselves, saturating environments in which their presence can be deduced only spectrally through its effects, as when they render river systems toxic to populations of fish. To say that the testosterone molecule circulates in an ecology is to take notice of its dynamism as a technology rather than treat it as a domesticated tool synthesized and used by humans for rational or irrational ends. Approaching the hormone as a technology whose circulation maps out an ecology underscores that although the human subject, the subject of transgender and race, is one of its homes, it is not the only one—and that “matters” (Cheah 1996) a great deal, in turn, to our understanding of both transgender and race, because from the very beginning of endocrinology as a medical technology the body and its technical capacities have bound sex and gender to race through hormones.

This essay travels with the testosterone molecule to pursue a theory of racialized and trans embodiment as technical capacities of all bodies, not only of the trans-of-color subject subordinated to racially normative and gender-normative white and cisgender bodies (though the hormone molecule is implicated in those relations). It focuses on technology to think race and transgender

together, from a common conceptual ground, rather than as separate strands of thought recombined through an intersectional or cyborg hybridity framework (see Puar 2012; LaMarre 2012: 79–80). The hormone is what the French thinker of technics Gilbert Simondon (1958: 52) calls “a technical object,” the threshold between the human and the machine as well as between race and trans; it relates trans to race through their enmeshed embodied processes while nevertheless maintaining their positive difference.² As an emergent ecology, the total circulation of testosterone molecules on the planet functions as what Timothy Morton (2013) might call a hormonal hyperobject, one too massively distributed in time and space to be apprehended by human consciousness as a totality yet not for that diminished in its insistent, if spectral, presence. Rather than being too overwhelming, this ecology finds its consistency in the fact that the circulation of the hormone molecule is always technologically mediated. Through technology, thought opens onto the racialization of trans bodies via a common analysis that does not subordinate race a priori or retrospectively to the conceptual protocols of theories of transgender embodiment but rather attends to how they both receive their historical animacy from an endocrinological engagement with the body’s hormonal technicity.

Recent work in transgender studies has explored the value of what gets left out in privileging the human subject and culture over technology and nonhuman agents. Aren Aizura (2012) examines the population level of biopolitics in transnational transgender migration and immigration, while Beatriz Preciado (2013: 33–34) playfully maps the dimensions of the “pharmaco-pornographic” arrangement of the contemporary biopolitics of sex and gender. Lucas Crawford (2008) speculates, mobilizing Gilles Deleuze and Félix Guattari, on the affectivity of a transgender Body Without Organs, while Eliza Steinbock (2013: 116) adds that “affect and the force of curious thinking may offer a livability that is not available by other means” to transgender studies. And in a unique contribution to post-humanist thought, Myra J. Hird (2008a) speculates on “animal trans,” transplanting transgender to nonhuman life. Accounts of the cross-species becoming of trans now include essays on spiders, starfish, and horses (Hayward 2008, 2011) in a textual field that yields a dynamic theory of trans as an expansive term for a general “somatechnics,” as Susan Stryker and Nikki Sullivan put it (2009). This essay adds to these emergent conversations by leveraging technicity to rethink not only transgender but also its relation to the racialized body. It mobilizes, in turn, Jacques Derrida’s (2002, 2005) work on originary technicity, Deleuze and Guattari’s (1987) writing on affect, and Simondon’s (1958) philosophy of technicity to accent the different forces that each of them offers to transgender studies as well as to feminist, queer, and critical race theories of embodiment. Turning then to a case of contemporary transgender biopolitics, the theoretical strands of the essay

are reexamined through the hormone molecule in an analysis of the medicalized emergence of the transgender child through puberty-suppression therapy.

This is both a materialist and a speculative essay.³ Its departure from the sometimes more recognizable position of the “lived experience” of political subjects who identify or are categorized as trans or of color is not meant to replace, dilute, or transcend any of those objects of analysis. The ecological travels of the hormone molecule do nevertheless insist on a different map of what counts as political than that which is given by the juridical subject of right enforced by the European Enlightenment and its colonial regimes. After exploring the potentiality of technology for thinking trans and race as technical capacities of the body, this essay concludes by dwelling within the modes of politics whose itineraries, including that of the testosterone molecule, it shadows.

Transgender as an Originary Technicity

Humanism is predicated on a strict categorical separation and implicit hierarchy of the body over technology. As Bernard Stiegler explains, the consequence of this ontological distinction is that “the analysis of technics is made in terms of ends and means, which implies necessarily that no dynamic proper belongs to technical beings” (1998: 1). The ontological separation of technics and living beings underwrites the notion of an integral human body, according to which the incorporation of technology is a fall from the original wholeness of birth.

This ontological separation is important to the category transgender because it informs any thinking of “body modification,” a phrase whose temporal spacing suggests the prior existence of a “body” that can only be modified after the fact, by means of technology as a tool, as the extension of the human beyond its biological originality. This strict separation is one reason it has made sense to argue that, whatever the empiricism of the existence of two biological sexes (and there is more than enough evidence to dismiss sexual dimorphism [see Hird 2008b]), the capacity to proliferate a multiplicity of psychic genders via technocultural modification of bodies according to rational human agency is the strength of transgender (see Butler 1990: 8–10; Salamon 2010). Yet this is also a transgendered political subjectivity derivative of the European Enlightenment’s version of human agency that presumes a set of universalisms in defining the subject. Monique Allewaert’s (2013: 20) work on ecology and “parahumanity” in the colonial tropics adds that the enlightened human as political subject, in addition to being historically exclusionary, may never have taken root, even as an ideal, within subaltern modes of personhood in the “modern” Americas.

The restriction of transgender agency to psychic identity also renders the matter of the trans body passive, inaccessible, and ultimately separate from the subjectivity that is meant to be its anchor, leaving the possibility open for transphobic

devaluation. As the “border wars” in American feminism over the inclusion and exclusion of trans women remind (see Enke 2012), if the capacity to transition from one recognized gender to another—or to suspend legible gender by inhabiting its in-between—requires an intentional modification of a preexisting body, then trans subjects can be cast under suspicion as not “truly” what they claim to be, as imperfect copies of an original. The use of technology to modify the body can be deployed against its authenticity, as a means of devaluing the trans body by measuring only its resemblance to the presumed natural cisgender body.

To avoid vulnerability to this transphobic, humanist reaction, I follow Stryker and Sullivan (2009) in proposing trans as an expression of the originary technicity of the body. Technics and its specific technologies, rather than subordinate to the rational subject, can be thought of expansively, as life touching itself. Derrida’s affectionate engagement with Jean-Luc Nancy in *On Touching* (2005: 216) provides such an account in its meditation on “eco-technics,” the technics of the body. For Nancy, the body touching itself is the fundamental example of how living beings are constituted by their differential technical capacities. In *Corpus*, Nancy (2008: 63) writes evocatively that “the body is the plastic matter of a spacing out without form or Idea,” which Derrida glosses in *On Touching* as a “plasticity and technicity ‘at the heart’ of ‘the body proper’ . . . an irreducible *spacing*, that is, what spaces out touching itself, namely con-tact . . . this spacing makes for the trial of noncontact as the *very* condition or experience *itself* of contact” (Derrida 2005: 221; emphasis in original). Touching is conditioned by the radical impossibility of touching oneself or the other, the elusiveness of pure, unmediated presence in contact between flesh.

Later, Derrida continues that it is through Nancy’s account of the irreducibility of the spacing or *différance* in touching that

this *technical* supplementarity of the body [is] acknowledged [as] essential and necessary, as it seems to me that one should always do. . . . It goes without saying that “essential originary” is conveniently translating this “law” into a classical language that precisely meets its limit here. For this supplementarity of technical prosthetics originary spaces out, defers, or expropriates all originary properness: there is no “the” sense of touch, there is no “originary” or essentially originary touching before it, before its necessary possibility—for any living being in general, and well before “the hand of man” and all its imaginable substitutes. (223; emphasis in original)

To speak in terms of originary technicity does not merge the technical and the somatic but maintains the productive *différential* relation through which the

spacing of life by its technical modes both effaces the purity of origin of the body while making available its energetic deferrals and associated media for what Nancy terms “incarnation”: the “organic articulation” of the body by technics (2008: 221). Originary technicity is an account of *how* living beings differ from themselves—a definition of *how* it is to be alive (not what it is or means). “As a self-relation,” Derrida (2002: 244) explains, “as activity and reactivity, as differential force, and repetition, life is always already inhabited by technicization.” Technology is not added to living beings. Life reaches beyond itself and returns to itself, touches itself and the world around it, in order to grow and change, to differ from itself over time, through an impure and yet necessary technical disposition.

If forms of trans embodiment are expressions of the originary technicity of the body, then body modification cannot be transphobically exceptionalized as a betrayal of the human’s integrity. For example, sex reassignment surgery—or, indeed, all desired surgeries, whether deemed “elective” or “medically necessary”—are a participation in the body’s open-ended technical capacities, the ways in which its physical matter, biological systems, and affective components exceed conscious will through receptiveness to change as difference, as nonidentity. The intervention of the surgeon’s technologies is not opposed to the body’s systems but rather informs and is informed by them. Hormone therapy, likewise, is a participation in the technical capacity of the endocrine system. The difference between synthetic hormone therapy and the endocrine system’s autonomic functioning is that hormone therapy involves a subject’s technological intervention upon its own body—a situation akin to Nancy’s example of the skin touching itself.

In the Austrian endocrinology circles that first produced the gonadocentric theory of the body’s sexed and sexual development in the 1910s and 1920s, the categorical splitting of the gonads into a separate reproductive gland (producing sperm or eggs) and “puberty” gland (producing testosterone or estrogen) medically unhinged biologically defined sex and sexuality from reproduction for the first time by proposing a hormonal plasticity separate from the function of the gametes (Logan 2007: 690, 698–703). This separation of sex, in both its somatic and psychic manifestations, into an actionable field that could be modified by removing or transplanting gonads was the medical intervention into the body’s technicity that made possible the eventual concept of sex reassignment and cross-sex hormone therapy. By understanding the endocrine system as receptive to change through variable hormone circulation and environmental change that could be affected by medicine, early endocrinologists recognized even before the synthesis of hormones that medical technologies of sex gain their relative animacy from the body’s own technicity, not in opposition to or by transcending it.

Treating endocrine therapies as an example of the originary technicity of the body does not collapse life and technics into an undifferentiated organism.

Drawing on a passage by Deleuze and Guattari engaged with Simondon, the trans subject intervening technologically upon its body can be understood as what they name the artisan. The artisan appears in *A Thousand Plateaus* (Deleuze and Guattari 1987: 408) to explain Simondon's critique of hylomorphism, the philosophical separation of active form from a passive or homogenous matter upon which form is impressed by human activity. In a hylomorphic account of hormone therapy, the rational mind impresses the ideal form of gender upon the substrate of the passive body through scientifically determined hormone dosage. The hylomorphic account of the work of the artisan follows analogously: the carpenter impresses the form of furniture she wishes to build upon the passive material of the wood.

"But Simondon demonstrates that the *hylomorphic* model," Deleuze and Guattari note, "leaves many things, active and affective, by the wayside" (408; emphasis in original). The artisan works on the wood, but the wood also works on itself and on the artisan, affecting the final object. The wood's "implicit forms," the virtual potential it carries as living matter, are what make it topologically receptive to being shaped by the artisan. These implicit forms are the torsions of the wood fibers that guide the tools and action of the artisan at the level of technique. Then there are its variable affects: "wood that is more or less porous, more or less elastic and resistant" (408). Rather than the artisan's violently imposing the form she has imagined onto the wood, Deleuze and Guattari propose, "it is a question of *surrendering to the wood*, then following where it leads by connecting operations to a materiality. . . . What one addresses is less a matter submitted to laws than a materiality possessing a *nomos*" (408; emphasis added). Not only do the wood's affects condition what the artisan can and cannot do, but the artisan must syncopate with their rhythms, acquiesce to their vibrant materiality, in order to "make" anything.

Following Derrida, the activity of the wood can be understood as its technical capacity for differentiation as living matter. The technique of the artisan is not a violent imposition upon the wood, because the wood shares with the artisan an originary technicity, as two distinct living beings entering into relation. Transposing this example back to hormone therapy, the trans subject is likewise an artisan, and the material with which the subject is engaged is the flesh of the body, with the hormone molecule serving as the interface relating the two without opposing them or collapsing their distinction. The body is not a passive substrate ruled by a transgendered consciousness but an open technical system with its own implicit forms, its own affects that enable and restrict the capacity of the subject to change the body with hormones (see Preciado 2013 for a first-person account). Hormone therapy as a strategy of trans embodiment is a unique expression of a living body's capacity to reach beyond and back toward itself through technics.

This material becoming entails the possibility of creative failure, too: to exceed itself and swerve in unexpected ways. The body undergoing hormone therapy cannot be separated in kind from other living beings in this respect and devalued as impure, for it is not of a different kind of technicity than a cisgendered body, even if their respective becomings are radically distinct.

If “trans,” then, signals the technical capacity of the body to modify its gender—if gender is defined by technical modes that are not external or purely prosthetic—then technicity is also the link to understanding racialized embodiment without recourse to an intersectional or cyborg framework because, as the next section explores, the same endocrinologists who first separated genetic and embodied forms of sex through hormones bound their clinical research to a racialized body. Technicity, then—the capacity that Simondon (1958: 72) describes as “the intermediary between form and matter”—is how bodies assemble themselves simultaneously as racialized and gendered while preserving what makes each distinct.⁴

Race is Technical

Social constructivist theories of race share with analyses of transgender as a psychic identification the humanist hierarchy of the body over technology. In what Arun Saldanha (2006) might call the deontologization of race, race becomes a form of phenotypic false consciousness, an irrational lamination over the body—literally, only “skin deep.” This approach offers a durable critique of the ongoing biologization of race in the West and its colonial enterprises (see Chun 2012: 40–47). Nevertheless, if race is “merely” a bodily fiction, it follows that it must eventually be subtracted from the human, that antiracist and postcolonial projects must share the goal of restoring the body to an unraced form. To maintain the bodily integrity of humanism, not only must it be purified of technology, it must be purified of race (see Latour 1993). Although social constructivism rejects any ontology of race, then, it nevertheless affirms a humanist ontology that is politically, ethically, aesthetically, and technologically immiserating. Humanism is immiserating because it dismisses and excludes with suspicion anything that is not of its ideal body, and it is immiserating because it seeks the subtraction of race from itself. Humanism interpellates minoritarian subjects into a racial melancholia that risks reinforcing the hegemony of whiteness as a totality through stubborn opposition to it (see Viego 2007). As a consequence, humanism is also less able to account for how the universal body of the human without a race is already de facto occupied by the unmarked white body in narratives of transcendence like American “post-racial” discourse (Nyong’o 2009: 1–6). Finally, humanist theories of race produce a regulatory ideal of political agency derived from European modernity. As Saldanha puts it, this version of race as politically

actionable “refers to the cultural *representation* of people, not to people themselves” (2006: 9).

If race is an effect of signification and regimes of visibility, Saldanha draws attention to the unresolved question of “how signification comes to have any effect at all, if not through the materiality of signs, bodies, and spaces” (9). Instead, Saldanha argues, “race must . . . be conceived as a chain of contingency, in which the connections between its constituent components are not given, but are made viscous through local attractions. . . . Nobody ‘has’ a race, but bodies are racialised” (12). If race is mapped out in its “machinic geography,” the implication is that “race should not be eliminated, but *proliferated*, its many energies directed at multiplying racial differences to so as to render them joyfully cacophonous” (21). In a sympathetic essay that aims ambitiously to “wrest the concept of race away from reactive dialectics and give it over to its full positivity,” Amit Rai (2012: 64) terms his ontologically embedded account “race racing.” Rai’s method is “to diagram race as sets of intensive variations in ecologies of sensation distributed unevenly and with uneven effects across populations,” so as not to separate race from what it can do to rearrange the historical forces that produce and manage its various forms (70). For Rai, race racing emphasizes the potential for experimentation and mutation in the historically given “habituated sensations” of living in racialized bodies, redefining the resources of antiracist politics (73–74).

The common question of the *how* of race—how racialization materially happens—and what it might look like were it to migrate away from humanism can be historically finessed in its relation to transgender through technicity. Race is technical to the extent that technicity gives race the force of its history, the history of technologies of racialization. In media studies, the growing ubiquity of digital technology has prompted consideration of race *as* technology. Beth Coleman’s (2009: 178) eponymous essay works toward “extending the function of *techne* to race” in order to evaluate the range of agentic potentials that resides in race’s repurposing. Coleman asks of her readers “to rest with the formula: race as a technology—as a prosthesis of sorts—*adds functionality to the subject*, helps form location, and provides information” (194; emphasis added). Race as a technology entails an affirmation of the capacity wielded by all subjects to retool the future of racialization in a less exploitative, less violent, and less racist way than humanism offers in its zero-sum game of subtraction. Wendy Hui Kyong Chun’s 2012 essay “Race and/as Technology” adds two questions that build on Coleman’s work: “Can race be considered a technology and a mode of mediation, that is, not only a mechanism, but also a practical or industrial art? Could ‘race’ be not simply an object of representation and portrayal, of knowledge or truth, but also a technique that one uses, even as one is used by it?” (38). Race, Chun suggests, could and should be made to do more in the service of the

overcoming of systemic forms of violence. If there is a value to thinking of “race as prosthesis,” as Chun puts it (49), it is that technicity is, following Derrida, an active capacity of living beings that makes this “prosthesis” inseparable from the body. To ignore its political capacities is a lost opportunity.

Both Coleman and Chun are careful to emphasize that the framework of race as technology is to think of race on aesthetic and ethical terms rather than on ontological terms, since for them ontology amounts to the biologizing question “what *is* race?” In light of Derrida’s careful exposition of the word *originary* and Saldanha and Rai’s Deleuzian ontology of difference, this essay’s treatment of race as technical leads to a slightly different conclusion. If race has any ontological consistency, it is expressed in historical, arbitrary, and contingent forms derivative of technicity; race is defined by historical change and a lack of origin in the sense in which Derrida glossed the originary noncontact of touching. Race has *not* always existed; it is not required for human life. Indeed, race is literally no-thing. It is a historically inherited capacity for embodied techniques that, by virtue of being technical, carries with it the immanent ontological capacity of technics to swerve toward antiracist projects, toward futures that are not prescribed by the Enlightenment and colonialism. Race is aesthetic and ethical, but both of those are made ontological by technicity if by ontology we ask “what is the *becoming* of race?” instead of what race “is.”

The distinction between ontological technicity and historical technologies is important when considering that sex and race have been entangled in the medical body from the very beginnings of endocrinology. In their 1920 paper “Climate and Puberty (*Klima und Mannbarkeit*),” Austrian endocrinologists Eugen Steinach and Paul Kammerer, the same figures who defended the hormonal plasticity of sex and gender, read anthropological literature alongside their heat experiments on rat gonad development to argue that higher temperatures stimulated the “interstitial tissues” that produce sex hormones, leading to an earlier onset of puberty and hyper-sex drive in colonized populations in tropical climates (quoted in Logan 2007: 694–95). Not only did they correlate race, through climate, to sex and sexuality, but they also argued that the endocrine system was the mechanism through which environmental information affecting the body was transmitted to subsequent generations, rejecting genetic determinism. Anticipating the post-World War II shift from scientific racism to humanist theories of cultural difference, Kammerer in particular deployed endocrinology in his subsequent work in the service of a “humane” form of racial hygiene he termed “rejuvenation,” according to which knowledge of the endocrine plasticity of the body’s development through sex and puberty would lead to an enlightened cultivation of the body politic, a hormonally conscious “socialist anatomy” of racial improvement in line with his Marxist politics (714). The

endocrine system, as a vehicle of chemical information that serves as interface between the environment, the body, and its heritable acquired characteristics, produced a medical body from the very beginning that bound sex to race and sexuality through the hormone molecule's technical capacities to affect both biology and culture.

If both transgender and race benefit from treatment as technical capacities of the body, it remains to explain how it is they retain their differences in this framework as well as how they are made more or less available at various ecological scales by systems of normalization and regulation. Given the historical binding of sex to race through endocrinology's definition of puberty, the administration of populations through a contemporary hormonal biopolitics of transgendered puberty provides an opportunity to think transgender and race together.

The Administration of Transgender and Race: Biopolitics and Puberty Suppression

Biopolitics addresses what Michel Foucault (1990: 141) enigmatically terms "the entry of life into history," the investment in and administration of the biological life of bodies and populations by the modern state and, increasingly, by neoliberal modes of capital that subsume the body down to its material and affective scales (Hardt and Negri 2001). Biomedicine is at the forefront of the contemporary biopolitics of sex, gender, sexuality, and race (see Rose 2006), and the transgender child is emerging as one of its newest anchors.

Puberty suppression therapy is increasingly administered for children under sixteen diagnosed with Gender Identity Disorder (GID) in the United States, Canada, and Europe (Cohen-Kettenis et al. 2011: 843). Through monthly injections or an implant device inserted under the skin, doses of a gonadotropin-releasing hormone (GnRH) analog bind with receptors in the pituitary gland to prevent it from releasing the luteinizing hormones (LH) and follicle stimulating hormones (FSH) that would otherwise trigger the release of sex hormones. If a child has not yet begun puberty, the therapy will do as its name suggests and prevent puberty from beginning, but it can also be administered to halt puberty after it has started. The procedure is, as its medical literature emphasizes, "reversible": once the GnRH medication is stopped, puberty begins or continues, regardless of age. Once a psychotherapist has assented to the "readiness" of the child per the diagnostics of GID, cross-sex hormones can be administered, and the child will undergo puberty as the desired sex (Cohen-Kettenis and van Goozen 1998: 247).

Puberty suppression therapy is touted by endocrinologists for reasons contested both in medical circles and in public debates over gender identity in childhood (see Lambrese 2010). Relying on a definition of puberty as a special period of somatic development segregated from an already consolidated core

gender identity, the therapy's goal is to prevent the morphogenesis of "secondary sex characteristics," a concept adapted from nineteenth-century sexology by American researchers on transsexuality and gender identity in the 1950s and 1960s (Meyerowitz 2002: 127). Yet the therapeutic aim in preempting puberty is not only somatic but also psychological. Undergoing puberty in a wrongly sexed body is frequently described as "a nightmare," and the case is made that puberty suppression will prevent anxiety, depression, and suicidal ideation in adolescence (Cohen-Kettenis and van Goozen 1998: 248; Cohen-Kettenis et al. 2011: 846). Its second goal is a "more 'normal' and satisfactory appearance" after transition—a far more gender-normative capacity for passing and "realness" than has been available for adult transition (Giordano 2008: 580).⁵ In some cases, FTM children who undergo puberty suppression therapy will not need top surgery as part of sex reassignment surgery, and MTF children will not need to manage the residues of voice change, facial hair, and a visible Adam's apple. Height can also be hormonally adjusted so that FTM and MTF adults fall within the statistical averages of men and women after puberty (Gibson and Cattlin 2010).

Puberty suppression therapy emerged in a Dutch clinic in the late 1990s (Cohen-Kettenis and van Goozen 1998: 246), but GnRH analog therapy predates it both in treatment of adult trans patients (to stop the production of endogenous sex hormones before administering cross-sex hormones) and in treating "precocious puberty." The latter in particular opens onto the biopolitics of sex, gender, sexuality, and race. The Tanner scale, the five-point diagram of "normal" puberty progression used to evaluate whether its onset is "precocious" and when to begin suppression therapy in trans children, is an astoundingly normalizing device: its visual and anthropometric standards were created out of median statistical analysis in the 1960s (Carel and Léger 2008: 2366). In bodies classified as male, the size of the phallus remains the most important measure, whereas for bodies classified as female, breast size and age of menstruation are emphasized. In order to minimize the arbitrariness of determining "when" puberty is supposed to take place, medical studies have produced variously phallogocentric explanations of precocious puberty: one 2006 article in the *American Journal of Human Biology* (Matchcock and Susman), for instance, gives as a possible cause of precocious puberty in girls the absence of a father in the household. Puberty's medical management is also highly racialized in the United States, where black and Latina girls are medically categorized by a supposedly "earlier" puberty than white girls, echoing the much older colonial hypersexualization of and medical interest in the genitals of the black and brown female body (see Gilman 1985).

Having framed trans and race as differential technical capacities of the body, a biopolitical analysis highlights how those capacities are impaired and administrated by systems of governance like healthcare rather than being guided

by the free will of an Enlightenment-derived subject. Puberty suppression therapy is a hormonal technology for naturalizing the gender-normative appearance of the body and for racializing puberty, as its second use in treating “precocious puberty” emphasizes. In its use to suppress puberty for transgender children, the stakes are similarly biopolitically entangled across the body, technology, and the politics of sex, gender, sexuality, and race. Puberty suppression therapy is rarely covered by insurance plans in the United States, and the cost of a monthly injection is about \$1,500, while the yearly implant option is about \$15,000—and this does not include the associated costs of regular blood work to check hormone levels and of follow-up appointments. Given the enforced precarity of the lives of many transgender children, particularly of color, puberty suppression therapy’s normalization as a medically necessary procedure covered by insurance might increase their relative bodily capacities through the amplified circulation of hormones.

At the same time, biomedical therapeutics of transgender childhood are not only normative in their fixation on suppressing puberty in order to achieve a “real” (real-looking) transition, but their technicity is also eugenic—given that race and puberty are historically entangled categories of endocrinology. The technological capacity to defer and medically produce the temporality of puberty recasts trans adults as insufficiently developed, awkwardly childish bodies, privileging a developmentalist understanding of the human body’s sex as the ideal anchor of transgender medicine. In the biopolitics of puberty suppression therapy, trans and race are copresent technical capacities, but in the sense of having been partially captured and programmed by the state and medical institutions in a logic of improvement that echoes the “rejuvenation” theories of early twentieth-century Austrian endocrinologists. A supple and adaptive politics of puberty suppression therapy must begin, then, by recognizing the ontological-technical and historically technological entanglement of transgender and race.

Conclusion: The Technical Politics of Transgender and Race

A potential technical politics of transgender and race that affirm originary technicity and mobilize historical technologies to engage the debilitating effects of contemporary transgender biopolitics could be an ecological politics that does not prioritize the juridical subject of right enforced by the Enlightenment. In the case of healthcare, attention to its uneven distribution at the population level asks transgender studies to speculate on forms of autonomy that could wrest it away from the valuation of neoliberal capital and into the hands of not only trans-of-color bodies but all bodies. The neoliberal rationality according to which synthetic hormones are prohibited as performance enhancement for athletes, require years of prohibitively expensive medico-psychiatric diagnosis for transgender patients and yet already permeate the environment in a geopolitics of toxicity suggests the concrete utility of

ecological experimentation with a politics of hormones in which the molecule contributes a technical and therefore political dynamism (see Bennett 2009).

The political capacity of technicity allows the hormone molecule to serve as the nonhuman threshold between nature and culture, between transgender and race, and opens onto a form of politics in which neither transgender nor race is subordinated to the other's politics or separated, requiring resuturing through a belated intersectionality or hybridity. Rather, trans and race carry with them historically conditioned potentials for retooling the body and the body politic. In this technical politics, it matters that the testosterone hormone circulates at multiple ecological scales, for a hormonal politics of transgender and race cannot attend to the question of access to healthcare without also attending to the racialization of black femininity through precocious puberty, the accumulation of endocrine disruptors in water supplies home to wildlife, and the humanist devaluation of performance enhancement through recourse to a "naturally" athletic body in organized sport. The ecological itineraries of the testosterone molecule prompt in their technicity a slight but vitally different version of Audre Lorde's ([1984] 2007) important formulation: it's not so much that "the master's tools will never dismantle the master's house" but that the tools are not technically defined by their use by any master, human or otherwise. The tools enter into relation with living beings—are their mode of self-elaboration—but also preserve a partial, irreducible autonomy of their own, available for different political becomings. Transgender and race are assembled together, technologically mediated, and they can always be assembled differently.

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Notes

1. In this essay, I employ both “trans” and “transgender.” By “trans,” I mean to accent an expansive conceptual reach of the term in contexts other than subjectivity or identity, particularly in thinking of trans as a technical capacity of the body. When I employ “transgender,” it is in reference to populations or bodies categorized as such as well as to the field of transgender studies.
2. “L’objet technique est au point de rencontre de deux milieux” (The technical object is the meeting point of two milieus [Simondon 1958: 52]). This volume, like most of Simondon’s work, has yet to be officially translated into English. All translations are therefore mine.
3. By speculative, I mean that the aim of this essay is the active creation of new values through materially engaged thinking rather than the reactive critique of or opposition to existing values.
4. “La technicité . . . est comme l’intermédiaire entre forme et matière.”
5. The sheer intensity of this investment in normative gender presentation and reductive sexual dimorphism is staggering in its blatant disavowal of anything that does not conform to the standards of the idealized cisgendered body, recuperated and naturalized through a narrative of growing up into adulthood.

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