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The Techno–Barbie Speaks Back: Experiments with Gendered Hormones

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Abstract

In *Testo Junkie*, Preciado briefly introduces the figure of the ‘techno-Barbie’. Contrasted with his own Testogel-fuelled pornographic experiments, the possibilities of oestrogen or progesterone seem somewhat uncharitably foreclosed upon. Though Preciado draws our attention to the gendered politics of chemical enhancement and hormonal justice, it begs the question: where do we draw the line between experimentation and chemical domination? We engage with the figure of the techno-Barbie to explore our own experiments with hormones and gendered agency in the boundaries of advanced biocapitalism. Drawing on a range of allied texts, we explore the ambivalences of our own hormonal experimentation. What kinds of hormonal experiments are allowed to be cast as such? In response to this all-encompassing theory of domination, we ask: how might the techno-Barbie speak back?

Introduction

In Paul B. Preciado’s work of autotheory, *Testo Junkie*,¹ the figure of the ‘techno–Barbie’ makes only a brief appearance. Yet as a discursive figure, she is a significant constituent of his theorization of the operation of biopolitical control in contemporary society. The techno–Barbie stands in for the ‘conversion of ‘sex’, ‘sexuality’, ‘sexual identity’ and ‘pleasure’ into objects used for the political management of life’ through advanced techno–capitalism (TJ, 105). Throughout *Testo Junkie*, Preciado focuses on the mechanisms of biopolitical control affected through hormones, which he suggests are novel vectors of contemporary biopower. In this article, we trace Preciado’s analysis of hormones, and more specifically, the uneven

ways in which some bodies are bestowed with the capacity to experiment with hormones, and some are not.

We argue that Preciado's thesis, while attending to the inequities produced through and by the use of hormones, is also circumscribed by his emphasis on the historical and experiential qualities of ingesting 'sex' hormones in particular. It thus reproduces a hegemonic gender binary. His situated response is of course contextualized by his own experiments with testosterone. Our central aim in this article is to consider what hormonal experimentation entails. We close the paper with our own autotheory, describing one of this article's authors' experiments with gendered hormones while undergoing in vitro fertilization (IVF) to explore the novel and liberatory possibilities of oestrogen and progesterone. Our account of this author's experiments with feminized hormones complexifies Preciado's account of constriction and domination, leading us to ask: what might the techno-Barbie say if she could respond to Preciado?

Channelling Orgasmic Force: The General Thrust of Preciado's Argument

Preciado argues that the contemporary iteration of capitalism exposes in its more basic form a fundamental force: *Potentia Gaudendi* (PG). PG, 'orgasmic force' or 'molecular joy', is the intangible force generated from the total excitation of the body, harnessed to create and transform the world 'in pleasure with'. Unadulterated, PG is a force that 'unites all material somatic and psychic forces and seeks all biochemical resources and all structures of the mind' (TJ, 42). PG is not reducible to a single somatic process nor social relation, but rather encompasses all potential excitation present in all extant matter, living or dead, which is open to modes of social control. For Preciado, the contemporary period lays bare the ways various biopolitical technologies work to channel and put PG to work 'in whatever form in which it exists' (TJ, 42).

Preciado argues that control of PG is simultaneously productive of gender and sexual relations as well as a locus of emerging affective and embodied forms of labour. These emergent relations, which he terms the *pharmacopornographic*, spell out a novel ‘division of flesh’ (TJ, 46), and with it a mode of governing the body. His focus then turns to the regulation of heterosexual femininity and how this has been achieved by means of hormonal contraceptives and artificial insemination. This serves as a complement to the proliferation and circulation of heteromasculinist pornographic codes. The biopolitical program, he summarizes, controls ‘the sexuality of those bodies codified as woman and cause the ejaculation of those bodies codified as men’ (TJ, 52).

The following chapters rehash aspects of the above argument. Heterosexuality is mediated and produced by knowledge and technologies of biopolitical control that accord and reinforce what would become a pharmacopornographic division of labor. Each chapter corresponds to an aspect of his experimentation with testosterone, and how his life is changed as a result. With each chapter, the reader inches not only closer to an understanding of how and why Preciado problematizes hormones as a technology of biopolitical control, but also the unevenness of its application. Of the various technologies throughout the text, Preciado builds toward feminized hormones as a key vector of biopolitical control, arguing that hormones, alongside neurotransmitters and opioids, become ‘hormonal straitjackets’ intended to maintain ‘a body that is compliant enough to put its *potentia gaudendi*, its total and abstract capacity for creating pleasure, at the service of the production of capital and the reproduction of the species’ (TJ, 118–19).

The general thrust of Preciado’s argument about feminized hormones is found in the chapter on *Pharmacopower*. This chapter, the longest in the book, fleshes out the different roles of sex hormones in contemporary society and is the one in which the techno-Barbie is described. Preciado traces three rough historical periods to this point: a premodern period

where certain kinds of obstinate substances and knowledges are problematized and demarcated from the tools and resources which productively channel PG; a modern period, where hormones are ‘discovered’ and applied to bodies according to their gender roles; and a pharmacopornographic period where oestrogen’s and progesterone’s roles as ‘biopolitical straitjackets’ are fully realized. Over the course of this chapter, Preciado traces parallel trajectories for testosterone and oestrogen/progesterone. Though both are ostensibly framed as technologies of biopolitical control, they are afforded different capacities. Inevitably, oestrogen/progesterone are reduced to technologies of increasingly molecularized regulation of female-coded bodies, which culminate in the figure of the techno-Barbie. By contrast, as we will establish, testosterone is invested with a greater degree of freedom, which Preciado suggests remains both nested in premodern models of ‘sovereign patriarchal power’ (TJ, 169) as well as subjugated knowledge/practices foreclosed by modernity.

Preciado’s first theoretical move in this chapter is to demarcate between premodern and modern healing practices. It is the elimination of these styles of thought and practices of ‘pagan’ healing that he cites as the beginning of the slow creep of pharmacopornographic hegemony. Premodern and paganistic healing, he notes, often involved the application of topical substances, some with hallucinogenic effects. The parallel to testosterone is stated openly at this point. He writes, ‘[m]ost medieval preparations with hallucinogenic properties were topically absorbed, dissolved in an oil-based ointment and smeared on the neck, armpits, or stomach. The way these salves were applied closely resembles transgender people’s use of testosterone in gel form today’ (TJ, 146). In this way, Preciado implies a link between testosterone use and other forms of folk wisdom, land sharing, and voluntary intoxication, problematized during the early modern period. It is worth noting that he makes no explicit mention of topical feminizing hormones. Preciado thus intimates that the consumption of testosterone subverts the infiltration of techniques of biopolitical control. In

doing so he places his experimentation alongside other forms of illicit drug use, as fundamentally in opposition to these technologies of biopolitical control, which he suggests channels PG toward productive ends.

This demarcation follows a kind of binarism that is present throughout his analysis: modernity, the enlightenment, patriarchy, the church, the clinic, are differentiated from the peoples and knowledge controlled by them. The inquisition and land enclosures, Preciado continues, would, in equal measure, problematize the PG of women alongside these pharmacological knowledges and practices. Through these events, the female-coded body is reduced to its reproductive functions. Altogether, feminine ‘agressiveness and pleasure’ are problematized specifically alongside non-reproductive sexuality and experimentation with psychoactive substances that do not productively channel PG. The process produces a hegemonic understanding of femininity as passive, submissive, and silent in the domain of sexual practices (TJ, 149).

The next move Preciado makes is to demonstrate the production and application of the above ‘somatic fictions’ to the body through the discovery and operationalization of sex hormones. Preciado argues that the eighteenth and nineteenth centuries ushered in a novel approach to the control of the body. In this period, he describes how hormones become meaningful as ‘chemical agents of masculinity and femininity, and working as ‘the missing link between the genetic and the physiological models of sex determination’ (TJ, 166).² Consequently, hormones came to be part of a ‘second biopolitical imbalance’ (TJ, 168). While investigations into testosterone tacitly confirmed normative ideals of the masculine body, finding the chemical was linked to ‘youth, strength, sexual desire, vigor, and vital energy;’ conversely, Preciado adds, ‘research projects on hormones considered feminized aimed only to control women’s sexuality and their capacity for reproduction’ (TJ, 168). In this way, testosterone and feminized hormones such as oestrogen and progesterone are put on

two distinct tracks from the outset: testosterone is linked with the premodern, pre-biopolitical model of sovereign patriarchal power—which Preciado argues still governs masculinity to some extent—while ‘femininity is regulated according to a set of biopolitical techniques intended to control the reproduction of the nation’s population in hygienic and eugenic terms, enforcing the reduction of “deviancy” understood in terms of class, race, sexuality, sickness, and disability’ (TJ, 169–70).

For Preciado, the apotheosis of these pharmacopornographic processes begins with the FDA’s approval of Searle’s contraceptive pill in the twentieth century (TJ, 191). Both the testing of the contraceptive pill and its distribution through technologies like the DialPak fomented a shift in biomedical power from the clinic and the lab to the domestic sphere. He describes the pill as a ‘chemical panopticon:’ a disciplinary regime that employs a combination of biomedical innovations and compliance-aids to make the (non-)reproduction of the species possible without active intervention. These processes of privatization and camouflaging of feminizing hormones thus represents a translation of ‘Enlightenment architectures of the hospital and prison, into a portable (and later bodily and prosthetic) technique’ (TJ, 201–202). These allow intervention into the body without active involvement from the clinician and without the patient being able to trace its ‘exact effects or where they come from’ (TJ, 205). The pill, he thus concludes, achieves a form of machinic enslavement, in which traditional modes of compliance based on a social subject no longer apply. The contraceptive pill, alongside Viagra and Prozac, are all indicative of these modes of molecularized biopolitical control emerging in the contemporary era.

Consequently, Preciado introduces the figure of a ‘new type of high-tech heterosexuality’ (220). Namely,

The techno-Barbie, remaining eternally young and supersexualized, almost entirely infertile and nonmenstruating but always ready for artificial

insemination and accompanied by a sterile supermacho whose erections are technically produced by a combination of Viagra and audiovisual pornographic codes emitted through computerized digital channels. Finally, pharmacopornographic heterosexual fertilization is happening in vitro. (TJ, 220)

This figure represents an unrealized future where the body is more effectively channeled to continue to support the ‘two pillars on which contemporary biocapitalism relies,’ specifically, ‘to control the sexuality of those bodies codified as woman and cause the ejaculation of those bodies codified as men’ (TJ, 52). Any technologies that do not help in this endeavor are foreclosed upon.

Hence, Preciado argues for testosterone’s continued role as an ‘enemy hormone’ (TJ, 221). Not only is it denied to cis-females outright, for fear of the ‘virilization of the female population on its both social and political levels’ (TJ, 227) but the selective administration of testosterone to cis-men also exposes how male sexuality and the erection is framed as nothing more than an ‘involuntary impulse’ that ‘can be produced or heightened by vasodilators or controlled and repressed by chemical castration’ while simultaneously ‘feminine sexuality is constructed as a passive territory on which the violence of male sexuality is exerted’ (TJ, 230). Thus, Preciado argues that a democratizing of the consumption of hormones poses a fundamental challenge to this power structure, stating: ‘Freely circulating and collectively used testosterone is dynamite for the heterosexual regime.’ (TJ, 230) Nonetheless, it seems strange that this democratization offers little space to reimagine what roles oestrogen and progesterone might also play in this revolution. What modes of experimentation do these hormones offer and what can they tell us about gendered relations? Is our engagement with these hormones limited to complicity, complacency and victimization, or might experimentation with oestrogen and progesterone complexify

Preciado's vision of pharmacopower? What might the techno-Barbie say of her own experimentations with hormones, of domesticity and clinical power and of her supermacho companion?

Figurations and the techno-Barbie

That the techno-Barbie is an important component part of current gender assemblages is surely true; yet, an attention to its cartographies also simultaneously 'unveil different modalities of wanderings, other tracks, traces and sea crossings to be followed and understood'.³ This is precisely Rosi Braidotti's point when she critiques Zygmunt Bauman's⁴ figure of the pilgrim, stating that because Bauman neglects a politics of location, he fails to give 'enough attention to situated perspectives and thus ends up over-generalizing his important case' (TONE, 90) for rethinking ethical agency. Counter-figurations necessarily emerge when the politics of location is accounted for and she points out how:

(...) [T]he flaneur turns into the obnoxious paparazzo, whereas on the horizon of postmodernity more telling figurations of mobility emerge: the au pair girl; the mail-order bride; the illegal immigrant; the cross-border prostitute; and even the babysitter. These are figures of displacement, which retain as anchoring points spatio-temporal coordinates in terms of gender, sexual identity, race, class, and age. (TONE, 90)

We are thus reminded that figurations are not arbitrary creations; they are instead rooted in 'concretely situated historical positions'.⁵ The emergence of various feminist figurations across the last few decades, such as Donna Haraway's 'cyborg'⁶ and 'companion species',⁷ Gloria Anzaldúa's 'Mestiza'⁸ and Braidotti's 'nomadic subject',⁹ must therefore each be viewed as corresponding to a particular set of contemporary problems. This point about figurations is not lost on Preciado, who offers us the techno-Barbie *alongside* a detailed exploration of the socio-political history of oestrogen. Viewed in this way, Preciado's

techno–Barbie might be taken as *his situated response* to the multiple ways in which he experiences the entanglement of his sexual subjectivity and broader biomolecular (pharmaco) and semiotic–technical (porno–graphic) processes (TJ, 33). Stated otherwise, the figure of the techno–Barbie is Preciado’s way of reminding us of the manifold ways in which our lives and bodies cannot help but be shaped, indeed ‘inhabited’, by the pharmacopornographic.

As an autotheoretical text, it is hardly surprising that *Testo Junkie* narrowly grounds itself in Preciado’s lived experience of consuming testosterone. Yet, if we take seriously Braidotti’s exhortation of the importance of the politics of location, then might we not also approach *Testo Junkie* as an invitation to explore the various counter–figurations that accompany the figure of the techno–Barbie? Indeed, Preciado’s attunement to the omnipresent opportunities for novelty and change, perhaps evident nowhere more clearly than in his discussion of *potentia gaudendi* seems to suggest his support for the task of tracing the manifold ways in which the techno–Barbie might mutate.

There are therefore at least two ways in which we might use the figure of the techno–Barbie as a companion for thought, and here Braidotti sheds light on what is at stake. Astutely highlighting that while both Haraway’s ‘cyborg’ and Gena Corea’s ‘mother–machine’¹⁰ are feminist critiques of scientific rationality, they are *pragmatically different*:

(...) the first [figuration] embodies a positive, friendly vision of the body–machine relationship in our high–tech world, throwing open a brand new set of innovative epistemological and ethical questions (...) moving away from the tactic of head–on confrontations, in favor of (...) coalitions on the basis of affinity (...) The second image —the mother machine —embodies a negative and rather hostile view of the body–machine relation, stressing its potential for exploitation and manipulation. It therefore highlights the need for a politics of

opposition. It puts into question the liberating force of scientific reason and its impact on the relationship between the sexes in our society. (NS, 106)

Braidotti's juxtaposition of the two feminist figurations above subsequently raises important questions about what we want the figure of the techno-Barbie to *do* and what she might offer contemporary gender politics.

We share Preciado's concern that 'white feminism' cannot and has not 'opened the black box' around hormones and their role in the constrictions of gender. As he argues in the *Countersexual Manifesto*,¹¹ feminist theorists have indeed tended to 'reduce sexual technologies to a constellation of reproductive techniques', with the side-effect of producing a longstanding failure of imagination around dissident uses of those reproductive technologies, particularly hormones. However, we also suggest that Preciado's work on hormones can be taken further. While testosterone is framed as the 'enemy hormone' to this future, oestrogen and progesterone play no significant role in the sexual and gender experimentation he imagines for the future. It is unclear why: estradiol, for example, is available as a patch which, as with testosterone, may allow for the same forms of 'postidentity drift'. The one-sidedness of his analysis seems a critical misstep, and we are concerned by the implications of what this stands to reproduce in thinking about the gendered dimensions of experimentation. While Preciado fails to account for the capacity of some bodies and some hormones to experiment, he does extend the capacity to be controlled, stating that, 'the time of female monopoly over victimization is drawing to a close; we are entering an era in which the technomolecular control of sex, gender, and sexuality will extend to everything and everyone' (TJ, 169). We take this assertion as an invitation to think not about the ways of victimization and control that might be newly available to cisgender males, but instead what forms of experimentation and possibility might be made available to 'females,' should we broaden our view beyond what is offered in Preciado's text.

In order to do so, we take inspiration from feminist technoscience, which offers a mode of attending to bodies and gender as an emergent becoming. According to Karen Barad, ‘the world is a dynamic process of intra–activity and materialization in the enactment of determinate causal structures with determinate boundaries, properties, meanings, and patterns of marks on bodies’.¹² Elaborating her view further, she argues that:

‘Things’ don’t preexist; they are agentially enacted and become determinately bounded and propertied within phenomena. Outside of particular agential intra–actions, ‘words’ and ‘things’ are indeterminate. Matter is therefore not to be understood as a property of things but (...) must be understood in more dynamic and productive terms—in terms of intra–activity. (MUH, 150)

From this perspective, the world is not static and unchanging; rather, it is always in an open process of dynamic becoming. This means that things–in–themselves do not pre–exist our apprehension of them and what we take for ‘things’ are but phenomena in their ongoing materialization. Stated plainly, reality is brought–into–being through our practices and it is not something we ‘discover’.¹³ Bodies, both human and non–human ‘come into existence within the confines of phenomena (...) [and] are defined and ‘thingified’ in relation to the conditions of the context’.¹⁴

Key to Barad’s agential realism is the notion of intra–action. Matter acquires form and becomes meaningful only through the actualization of different agential intra–actions. For Barad, nature has an entangled and emergent nature and there is therefore ontological indeterminacy instead of ontological fixity. This indeterminacy is subsequently ‘resolved’ via intra–activity, which she explains thus:

Intra–actions include the larger material arrangement (i.e., set of material practices) that effects an agential cut between ‘subject’ and ‘object’ (in contrast to the more familiar Cartesian cut which takes this distinction for granted). That is, the agential

cut enacts a resolution within the phenomenon of the inherent ontological (and semantic) indeterminacy. (MUH, 139–40)

Unlike the more familiar inter–activity which assumes that relata pre–exist relations then, Barad’s intra–activity highlights how subject and object do not exist as such apart from their intra–action. Intra–action enacts agential separability (that is, the agentially enacted material condition of exteriority–within–phenomena) to produce relata–within–phenomena; and, once an agential cut is made, the identification that subsequently results is also ‘not arbitrary but in fact materially specified and determinate for a given practice’ (MUH, 155). Stated plainly, the point here is that an entity is never a fixed object, a thing–in–itself; it becomes a ‘thing’ only because of the relations it enters with other ‘things.’ Reality is ‘not a static relationality but a doing—the enactment of boundaries—that always entails constitutive exclusions’ (MUH, 135). Reading Barad alongside Preciado, we are thus invited to explore the multiple becomings not only of testosterone, but also of oestrogen—and really, of all hormones. In what follows, we want to take up this invitation. By thinking with both the figure of the techno–Barbie and one of the authors’ experiences of stimulated IVF, we aim to make clear not only what experimenting with hormones coded as ‘feminine’ by this process might look like but also, what is wagered, gained and lost in doing so.

A Story of an ‘Uncaged Ovulating Female’

Whilst writing this article, one of the authors began the process of stimulated IVF. It struck us in discussing Preciado’s work that, as the author began to prepare their body for the product of artificial insemination, this experience might offer a critical case by which to contrast Preciado’s theorization with our own. It may also offer a way of considering what the techno–Barbie might say were she to ‘speak back’ to Preciado. The techno–Barbie is scantily fleshed out in *Testo Junkie*, with only one paragraph explicitly dedicated to

describing the relations which are represented by this figure. Nonetheless, we can glean that her use of hormones skirts between the frivolous and the forced. It also appears that her role is not to experience pleasure herself, but rather to provide pleasure to her ‘sterile supermacho’ and is reproductive as needed: ‘gender and sexuality, modulated by the fluctuations of the pharmaceutical market, implants and micropills’ (TJ, 220). In the author’s experience, access to these biomedical enhancements of their body were indeed a site of inequality, but they also expose a more ambivalent relationship between surplus pleasure, experimentation and reproduction than Preciado’s account of gendered hormones leaves space for.

The author underwent a procedure called Intracytoplasmic Sperm Injection (ICSI). The process involves the injection of their partner’s best sperm into their eggs and the subsequent fertilized embryos grow to blastocysts, which are then are implanted into their body. Each IVF attempt costs around £6,000 if paid for privately. Even if this treatment were sought using the UK’s National Health Service (NHS), it would not be universally available, but instead subject to a crude ‘postcode lottery’, with some NHS Trusts offering differing numbers of rounds of treatment to others dependent on demand. There are also strict restrictions on who is permitted to receive treatment predicated on their current health state, including body mass index, whether they have recreationally used drugs, and whether they are a smoker. Types of treatment available also differ by postcode, with some Trusts insisting patients undertake several rounds of IUI (artificial insemination) prior to referral for IVF.

As the author injected their abdomen daily first with a cocktail of HCg hormones then progestogen pills, then injections of gonadotropin and somatropin, and then administered oestrogen tablets and progesterone injections, they too imagined what the ingestion of hormones might mean were their body not, in this context, reduced to its reproductive capacities. Could it instead become another laboratory for experimentation? In the context of

IVF protocol, the effects of the administration of large doses of hormones are—unlike testosterone—never envisaged as enhancing virility or *potentia gaudendi*, but instead reduced to a ‘psychological surrogate for stress in contemporary Western culture,’¹⁵ stress that produces presumptions about the need to contain and manage the effects of hormones associated with the feminine. Irritation, anger or fury, when associated with testosterone, may be considered an affirmation or expression of masculinity. Yet, a similar hormonal experience for the techno-Barbie is coded by most representations of IVF protocols as ‘excessively’ feminine. The surplus effects of hormones might even be read by fertility clinics as a sign of the patient’s unsuitability for treatment, or even for becoming a bioparent (a presumption the author at times found themselves reproducing).

The author wondered how the surplus effects and pleasures of hormonal injections had been left for so long untheorized and unremarked upon. They wondered how many queers before them (many of whom must, surely, the author thought, be as hungry as they are for the altered states produced by the intra-action of bodies and drugs) had grappled with the tension between the conventional use of hormones taken out of a desire to create (or curate) biofamily, and recognition of the pleasures of hormonally induced intoxication, if intoxication is how it might be described. The author had never ‘slammed’ drugs before and here was their excuse. No texts described the pleasures attached to the drugs required in IVF, the rituals involved in preparing and administering the injections, nor the liberatory potential of IVF for uncoupling fucking and reproduction. The literature they read missed the *potentia gaudendi* of the prick of the needle as it meets the surface of the skin; its clean, unmarked piercing into flesh; the long ten seconds as the hormones surged into the body and they waited for them to take effect; the feeling of *abundance* and possibility as their ovaries swelled with expanding egg follicles. They watched with some pleasure as their stomach distended to make space for them. They savored leaving open the possibility that intercourse

would, if the IVF worked, never again be an experience into which they had poured an unpredicted longing for pregnancy and parenthood every time they fucked.

Beginning from a problematization of Preciado's framing of hormones and femininity, our attention turned to reproductive hormones—IVF in particular—when considering the author's experience. This enables us to think of these hormones as more than a biopolitical 'straitjacket' (TJ, 118) that does not fit neatly into the either/or of a medicinal protocol or an experiment entirely outside all clinical and institutional strictures. Even in the context of IVF, the use of reproductive hormones can only ever loosely be described as an institutionally sanctioned protocol. Research on the effect of reproductive hormones, as the author was told on many occasions by their consultant, remains underdeveloped and constantly in flux. Evidence, as far as it was available at all, for many elements of IVF treatment is poor, and thus the patient has little to go on but trust in the consultant's knowledge and instincts.

For instance, in the process of undergoing embryo transfer, the author was put on a regime of progesterone—in a combination of gels, tablets and injections—that meant its presence in the blood was 50% higher than it would be in a conventional pregnancy, and much higher than ordinarily prescribed at equivalent clinics. While the object of prescribing hormones for IVF remains certain, the means of getting to that destination always remains an experimental collaboration between bodies that gestate and clinicians who themselves are never able to do much more than 'feel' their way through the process of assisting their patients based on the limited evidence available and, frequently, their own experience and research. Despite the purpose of creating bio-family, for which reproductive hormones are of course primarily used, IVF and feminine-coded hormones might also provide embodied forms of excitement, pleasure, and offer other forms of queer becoming. Despite pushing back on Preciado's thinking on this, we nonetheless find partial resonances between Preciado

and the experiences of the author undergoing IVF. Exploring this experience also brings into view a broader point regarding the friction between bodies and the state, and how most bodies are constrained from the possibility of experimenting in this way. In response, we find ourselves, much like Preciado, imagining what kinds of queer families universal access to IVF might enable.

In thinking about the author's experience of the possibilities and pleasures of IVF, we also heard an echo of the feminist health movements of the 1970s, which had:

hoped to build in microcosm a liberated form of health care, one that could provide an alternative to the rising violence of population control, the legacy of eugenics, the criminalization of abortion, the sexism of everyday medical practice, and the controlling patriarchal moralism around fertility, sex, and sexuality more broadly.¹⁶

Somewhat ironically for our purposes here, these movements took shape through lay practices and experimentation, designed to move outside the patriarchal and oppressive space of the clinic and to recenter women's experience of their bodies as evidence in contrast to that mobilized by biomedicine.¹⁷ As Olszynko–Gryn describes in her account of British women's liberation groups providing access to pregnancy testing in the 1970's (when access through the NHS was limited and prior to at-home tests being widely used), this radical history was premised on the movement—or 'appropriation' – of such technologies *from* the clinic or laboratory to the domestic sphere.¹⁸ Despite the fact that undergoing IVF is an exceptionally engaged process, requiring significant contact with clinics and healthcare professionals—precisely what these movements sought to circumvent—IVF was experienced as a practice of queer possibility, as the author physically administered hormones, felt their body change and became acutely aware of their gendered experience. However, just as the women's health movement had been fraught with ambivalence due to the centering of certain

types of bodies and subjectivities,¹⁹ so too did the experience of undergoing IVF bring to the fore the ways in which access to these technologies were confined to the few. Thus, the potential of *experiencing* IVF as a space of possibility is also foreclosed to many.

The author's experience also underlines the problematics of restricting access to particular hormones via what is often an ambivalent desire for (bio)family. As Sophie Lewis puts it, in her work on surrogacy, what really matters 'is the abolishment of the isolated privatization of human misery: the radical scarcity and overwork that is born of the logic of marriage and of family'.²⁰ Access to the intra-action of hormones and bodies is preconditioned in the context of IVF by a demand that those who use them privatize those intra-actions and are ultimately responsible for the work of managing them. This is despite the fact that reproduction via IVF is otherwise effectively 'curated', and that the manufacturing of foetuses in clinics is an inherently collective endeavour, making visible the labour involved in gestation, and indeed the possibilities of reimagining the work of making. The relegation of IVF and the effects of hormones that are an essential component of its protocol to the *private sphere* of the personal, for the sole purpose of recreating, contains the queer potential of hormonal experimentation and possibility, and that remains absent in research on IVF to date. Indeed, IVF itself entirely divorces sexual pleasure from intercourse-for-reproduction.

Conclusion

Our intention in this article has been to practice the 'caring work of criticism, of historicizing and situating, of tracking non-innocent genealogies, of making uneasy, of troubling, of *unsettling*' (UC, 721). We wanted to grapple with the speculative uses of Preciado's work on hormones, as well as what it might be at risk of reproducing. In highlighting the constraints placed around the radical and queer potential of hormonal experimentation and possibility, it

is important not to lose sight of what prompted us to write this article: the intuition that there is an ‘excess’ to hormones that merits exploration and explication. As our engagement with Barad’s notion of intra–action reminds us, this excess is ontological, and indeed, it is not just hormones, but life more generally as Bataille argued, that is always already exuberant and extravagant, overflowing any and all categories.²¹ This excess in question is thus not one that exists as ‘unknowable’ in and by itself, outside of our engagement with it: this would simply lead to a situation where one might aim to engage with this excluded ‘unknowable’ so as to master it. Stated differently, because this ‘unknowability’ associated with hormones is irreducibly related to any epistemological frameworks we might employ for their sense–making and ordering capabilities, ‘there is no knowledge that could in principle be available to us and that would allow us to eliminate chance and replace it with the picture of claim of necessity behind it’.²² Perhaps one way in which we might navigate the multiple tensions associated with thinking with hormones —not only the author’s gendered experience of IVF, but also the various ways biomedical logics shape the feelings, intra–actions and agencies produced by hormones — is to approach our encounter with them as a lure through which we can learn to affirm play, ‘to affirm structure at the expense of content,’²³ so that our thinking may always remain open–ended. Thinking in this register subsequently necessitates a shift in the way we think about practices of hormonal experimentation like IVF, where the focus now is no longer *exclusively* on IVF as a locus for critique *against* mainstream society, but instead as a practice that is oriented away from it. No longer shackled by notions of gender, expanded, (re)negotiated or otherwise, how might we then ride the *lines of flight*²⁴ practices of hormonal experimentation take us on such that we may always be receptive to moments in which we regain intimacy with the exuberance of life,²⁵ regardless of how fleeting such an encounter might be?

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- ¹ Paul B. Preciado, *Testo Junkie* (New York: Feminist Press, 2013), hereafter TJ.
- ² cf. Nelly Outshoorn, *Beyond the Natural Body: An Archeology of Sex Hormones* (London: Routledge, 1994), 21.
- ³ Maria Tamboukou, 'Feeling the Real: The Non–Nomadic Subject of Feminism', *Theory, Culture and Society* 38:3 (2021), 3–27, (5).
- ⁴ Zygmunt Bauman, 'From Pilgrim to Tourist—or A Short History of Identity' in *Questions of Cultural Identity*, edited by Stuart Hall and Paul Du Gay (London: Sage Publications, 1996) 18–36.
- ⁵ Rosi Braidotti, *Transpositions: On Nomadic Ethics* (Cambridge: Polity Press, 2006), 90, hereafter, TONE.
- ⁶ Donna Haraway, 'A Cyborg Manifesto: Science, Technology and Socialist Feminism in the Late Twentieth Century' in *The Cybercultures Reader*, edited by David Bell and Barbara M. Kennedy (London: Routledge, 2000).
- ⁷ Donna J. Haraway, *The Companion Species Manifesto: Dogs, People and Significant Otherness* (London: University of Chicago Press, 2003).
- ⁸ Gloria Anzaldúa, *Borderlands/La Frontera: The New Mestiza* (San Francisco, CA: Aunt Lute Press, 1987).
- ⁹ Rosi Braidotti, *Nomadic Subjects: Embodiment and Sexual Difference in Contemporary Feminist Theory* (second edition) (London: Columbia University Press, 2011), hereafter, NS.
- ¹⁰ Gena Corea, *The Mother Machine: Reproductive Technologies from Artificial Insemination to Artificial Wombs* (New York, NY: Harper and Row, 1985).
- ¹⁰ Paul B. Preciado, *The Counter–Sexual Manifesto* (New York, NY: Columbia University Press, 2018), hereafter CSM.
- ¹¹ Karen M. Barad, *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning* (Durham, NC: Duke University Press, 2007), 140, hereafter MUH.
- ¹² Steve Woolgar and Javier Lezaun, 'The wrong bin bag: A turn to ontology in science and technology studies?', *Social Studies of Science* 43:3 (2013), 321–40.
- ¹³ Chris Calvert–Minor, 'Epistemological Misgivings of Karen Barad's 'Posthumanism'', *Human Studies* 37:1 (2014), 123–37 (128), hereafter EMKBP.
- ¹⁵ Charis Thompson, *Making Parents: The Ontological Choreography of Reproductive Technologies* (Cambridge, MA: MIT Press, 2007), 93.
- ¹⁶ Michelle Murphy, 'Unsettling Care: Troubling Transitional Itineraries of Care in Feminist Health Practices', *Social Studies of Science* 24:5 (2015), 717–37 (719), hereafter UC.

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- ¹⁷ Michelle Murphy, 'Immodest Witnessing: The Epistemology of Vaginal Self-Examination in the U.S. Feminist Self-Help Movement', *Feminist Studies* 30:1 (2004), 115–147.
- ¹⁸ Jesse Olszynko-Gryn, 'The feminist appropriation of pregnancy testing in 1970s Britain', *Women's History Review* 28:6 (2019), 869–894.
- ¹⁹ As Murphy writes, '[i]n the effort to celebrate embodied variation, privilege shaped who easily saw and felt themselves as already 'healthy' and hence available to the aspiration of happily caring and responsabilizing themselves for their own health' (UC, 720).
- ²⁰ Sophie Lewis, 'Full Family Now: Surrogacy Against Feminism' *Society and Space*
<https://www.societyandspace.org/articles/response-by-sophie-lewis-full-family-now-surrogacy-against-feminism>, consulted 21 November 2021, 3.05p.m.
- ²¹ George Bataille, *The Accursed Share: Volume 1* (New York, NY: Zone Books, 1991).
- ²² Arkady Plotnitsky, 'Effects of the Unknowable: Materialism, Epistemology, and the General Economy of the Body in Bataille', *Parallax* 7:1 (2001), 16–28 (20).
- ²³ Marcus Doel, 'Miserly Thinking/Excessful Geography: From Restricted Economy to Global Financial Crisis', *Environment and Planning D: Society and Space* 27:6 (2009), 1054–73 (1061).
- ²⁴ Gilles Deleuze and Felix Guattari, *A Thousand Plateaus: Capitalism and schizophrenia* (London: Bloomsbury, 1988).
- ²⁵ Kathryn Yusoff, 'Biopolitical economies and the political aesthetics of climate change', *Theory, Culture & Society* 27:2 (2010), 73–99.