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PLASTIC BITS

Genitals and Sexual Plasticity

In *Countersexual Manifesto*, Paul Preciado claims that we are on the verge of a historic planetary mutation, a radical juncture that involves the potential for rewriting sex itself. "We will soon stop printing the book," Preciado tells us, "and start printing the flesh, thus entering the new era of digital biowriting."[1] Here, Preciado is referring to the ongoing advances in 3D bioprinting, a process of combining cells, nutrients, proteins and biopolymer gels to fabricate biomedical parts which imitate natural tissues or organs of the human body.

In recent years, scientists at the Wake Forest Institute for Regenerative Medicine have successfully produced a variety of so-called "printed vital organs" intended to repair or replace missing or diseased body parts. Ears, bladders and kidneys have all been successfully replicated thanks to "bioink," a gelatinous substance of living cells cultivated from the seed cells of a human donor.[2] Even erectile dysfunction, a condition that has posed significant difficulty for regenerative medicine, is on the verge of benefiting from 3D bioprinted hydrogel scaffolds that could restore functionality to the corpus cavernosum of the penis.[3] As such, 3D bioprinting acts somewhat as an emblem of our transhumanist condition or capacity, owing to its qualitive reformulation of the body alongside companion species and technologies,namely: robotics, prosthetics, neuroscience and biogenetic engineering.

However, the malleability of 3D biotechnology is mediated by a cautioned resistance from biomedical institutes, specifically in relation to the printing of new or alternative sex organs, a distinct hesitation that prohibits any such fabrication on the grounds of ethical concerns. According to a 2020 article published by the *International Journal for Bioprinting*, the development of 3D bioprinting technologies raises questions for biomedical researchers and scientists about the prospect of "physiologically enhancing" or "technologically re-designing" so-called human nature itself.[4] Ultimately, the resistance from bioethical advisors seems to stem from an apprehension regarding the lack of clinical oversight if bioprinting was made commercially available and the supposed impact on patients who undertake radical forms of genital transplantation and fabrication.

"But whose ethics are they talking about?" Preciado asks in *Countersexual Manifesto*, and "is the aesthetic of sexual difference to be considered an ethical limit to the transformation of the human body?"[5] The answer Preciado provides later on in the text suggests that patriarchal and heterosexual norms govern all ethical considerations relating to sex organs, where the 'natural' reproductive function of male and female genitals act as the proverbial cornerstone for sexual determination. In fact, this resistance to the notion of rewriting sex itself in bioethical discourse opens a larger question about the visual politics of genitals in an age of biotechnology, malleability and supposed "sexual wellness," where sex parts tend to meet plastic bits on a daily basis. Dildos, love eggs, vibrators, personal hygiene products, synthetic fibres, tampons and moon

1 Paul B. Preciado, *Countersexual Manifesto*, trans. Kevin Gerry Dunn (New York: Columbia University Press: 2018), 11.

2 Logan Ramanathan, "3-D Bioprinting: A Modern Day Prometheus" *The New York Times*, April 13, 2023. https://www.nytimes.com/2023/04/13/learning/3-d-bioprinting-a-modern-day-prometheus.html

3 Geng An, Feixiang Guo, Xuemin Liu, et al. "Functional reconstruction of injured corpus cavernosa using 3D-printed hydrogel scaffolds seeded with HIF-1α-expressing stem cells", *Nature Communications* 11, No. 2687 (2020): 2. https://doi.org/10.1038/s41467-020-16192-x

4 Anastasia Kirillova, Stanislav Bushev, Aydar Abubakirov, et al. "Bioethical and Legal Issues in 3D Bioprinting", *International Journal of Bioprinting 6*, No. 3 (2020): 8. doi: 10.18063/ijb.v6i3.272

5 Preciado, *Countersexual Manifesto*, 11.

cups represent only some of the artificial interlocutors which continually interface with genitals and erogenous zones in deliberate and purposeful ways. In more ways than not, plastics are already, and inextricably, enmeshed with sexual organs and energies on a global scale.

In *Countersexual Manifesto*, Preciado plainly calls for a deterritorialization and desacralization of modern anatomy through the purposeful and deliberate hijacking of capitalism's political organization of sex and sexuality, as one of the few possible avenues to liberate the productive forces of desire from hetero-colonial capitalist control and affirm genital presentations outside of sexual binarism. Artificial plastics and synthetic technologies, it would seem, are key components in Preciado's logic to disrupt capitalism's hold on sexual (re) production. *Countersexual Manifesto* explicitly privileges the dildo as an artificial technology to counter sexual naturalism, yet the myriad of other sexual plastics in the world and their diverse interactions with various genitals gives us pause to consider the entanglement or interface between plastic bits and sexual parts on a more existential level.

What does it mean to be plastic? Can an argument be made for a metaphysical understanding of our apparent plasticity—a "metaplasticity" if you will? How might a visual culture of counter-genitalia in times of sexual plasticity inform new bioethical considerations of the body and identity politics?[6] In this article, I return to Preciado's rallying call years after the publication of *Countersexual Manifesto*, to examine the importance of "sexual plasticity" as it appears today and to consider what it means for sex to be always already interfaced with plastic technologies in quotidian life, for better or for worse.

SEXUAL PLASTICITY

The term plasticity is a bit of a buzzword in cultural theory today. Easily shaped and moulded onto a variety of subject positions, it has arguably inherited the same criticism levied at "performativity," owing to the latter's overuse and under-theorization by academics since the beginning of the twenty first century. "Performative" and "performativity" exploded onto the arts and culture scene following the arrival of Judith Butler's Gender Trouble in 1990, frequenting many an artist's statement and practice methodology. However, critics who observed the rise of performative gestures in art and literary practice argued that the uncritical acceptance of performativity in artistic or theoretical frameworks too easily bridges the gap between possibility of 'saying' and 'doing.'

As such, performativity became a kind of lure or distraction which foreclosed any dialogue on unconscious, unthought or indeed unwelcome subjective intentionality.[7] In recent times, plasticity has equally been charged with under-theorisation and misuse. From gender studies to molecular biopolitics, everything (matter, language, thought, politics, etc) has become plastic and malleable through this popular lens of critical theory. This observation should not diminish the theoretical relevance or generosity offered by a term like plasticity. Instead, it should serve as a warning for academics to avoid banishing its discursive malleability to the realm of the ineffable.

In *The Future of Hegel: Plasticity, Temporality and Dialectic,* Catherine Malabou provides

6 By 'counter-genitalia', I am thinking less about 'counter' in terms of opposition or rivalry, and more in terms of 'counter' as offsetting or counterbalancing when how of sex breaks down.

7 Andrea Fraser, "Performance or Enactment?" in *Performing the Sentence: Vlews on Research and Teaching in Performance Art*, ed. Carola Dertnig and Felicitas Thun-Hohenstein (Berlin: Sternberg Press, 2014), 123.

arguably one of the most succinct definitions for the term plasticity, as "being at once capable of receiving and of giving form."[8] Plasticity, for Malabou, is first and foremost a double conceptual working through of form itself. It is susceptible to changes in its configuration and retains the power to mould or model a structure.[9] In this sense, plasticity's native domain would appear to be art itself.[10] Plastic surgeons and sculptors routinely practice the articulation and modelling of somatic and material form, either reshaping or emphasising the ways in which certain assemblages are visually received or instantiated. Neural plasticity—the aptitude for cultural or social development—is characterised by the brain's suppleness and flexibility in response to experience and injury.[11] As such, plasticity, at least for Malabou, generally refers to the ability for all living things to evolve and adapt in response to worldly encounters.

While there has been a notable increase in the number of articles recently published on plasticities of gender, all of which attempt to wed the perpetual malleability of plastics with identity politics (to varying degrees of success and weakness), the space for sexual plasticity in cultural theory has already long been established thanks to the bountiful arena of animal studies. Sexual plasticity in animalities is a distinct biological phenomenon that observes the evolution or adaptability of sex outside of the confines of dichotomous or static sexual expressions. Overall, the majority of vertebrates in the world are considered to be gonochoristic, meaning that individual sex is genetically determined and exhibits no variation during a given lifecycle. For example, the primary sex of most mammals and birds is the result of an 'early decision' determined by the chromosomal composition that occurs during or after fertilization.[12] In this context, sex is determined for most mammals by the genetic information inherited from male and female germ cells and the later sexual characteristics or reproductive systems are formed with no ability for variation further on in the life cycle.

However, there are some species of fish, such as teleost and bluehead wrasse, that exhibit plastic patterns of sexual development. During their individual life cycle, these species of fish retain the ability to transition from one sex to the other postnatally, thanks to molecular and neuroendocrine mechanisms that can be triggered within or beyond embryonic development.[13] The testes and ovaries in teleost originate from a bipotential gonadal primordium (an organ in the earliest stage of development) that is labile, meaning that sex differentiation can occur in response to genetics, hormones or extrinsic factors throughout the course of gonadal development.

For teleost, this process of gonadal determination and differentiation that occurs throughout its lifecycle is determined by endocrine communication between the brain, pituitary gland and gonads themselves. The brain of teleost is sexually differentiated early on as male or female but has the ability to change or adapt at a later stage.[14] While studies have

8 Catherine Malabou, *The Future of Hegel: Plasticity, Temporality and Dialectic*, trans. Lisabeth During (Oxfordshire: Routledge, 2005), 8.
9 Ibid.
10 Ibid.
11 Ibid.
12 Hui Liu, Erica V. Todd, Mark Lokman, et al. "Sexual Plasticity: A Fishy Tale", *Molecular Reproduction & Development 84* (2017): 171.
13 ibid, 171-172.
14 Preetha Rajendiran, Faizul Jaafar, Sonika Kar et al. "Sex Determination and Differentiation in Teleost: Roles of Genetics, Environment and Brain," *Biology 10*, No. 973 (Autumn 2021): 2. doi: 10.3390/biology10100973.

not conclusively proven otherwise, the current working theory in biological research is that the brain of certain fish species is capable of intervening on the regulation of hormones required for gonadal hormone synthesis, a process which essentially oversees the regulation of sex differentiation in most organisms.[15] By comparison, in humans both male and female reproductive cycles are controlled by the interaction of hormones from the hypothalamus and anterior pituitary with hormones from reproductive tissues or organs.[16] However certain species of fish, such as teleost, can possess either testes or ovaries which later change during sexual maturation/transition thanks to the secretion of certain hormones by the brain. In some cases, teleost can even possess both functional male and female gonadal tissue at the same time.[17]

Further still, recent studies into the plasticity of fishy sexual expressions have even demonstrated that gonadal 'sexual fate' (a term used by biologists who typically study such species of transitory fish) is an active and ongoing process of suppression. Research in this field claims that teleost appear to be involved in a process of suppressing or delaying a presumptive change of sex until the need, or maybe desire, to transition should arise.[18] Intriguingly, such a claim by scientists suggests that there is a certain degree of agency or choice made available to these incredible creatures. Sexual plasticity, in this sense, is not a static mould which replicates all forms of sexual expression or genital presentation in the world. Instead, it is a dynamic process of flexibility and malleability informed by genes, hormones and environmental factors, where sexual form is a response in and between entities and the world at large.

Returning to Preciado's earlier plea for a deterritorialization and desacralization of modern anatomy, it is reasonable to see how a model like sexual plasticity among certain species of fish might lend itself to the articulation of a new metaphysical understanding of corporeal plasticity and a visual culture of the body that runs counter to binary naturalism. In *Countersexual Manifesto*, Preciado introduces a kind of sexual plasticity, 'countersexuality,' which is outlined as an anti-Oedipal theory of the body that critically analyses gender and sexual difference with the intention of replacing the heterocentric social contract with the prosthetic order of the dildo.[19] For Preciado, honouring the appearances of sexual plasticity in daily life is to rebuke the 'heterocolonial castration of the living'; the 'corrective' surgeries of intersex babies at birth; the barring of access to surgical and hormonal treatments for trans folk; the refusal from bioethical committees to approve the creation of new genital configurations using 3D bioprinting, and so on.[20]

In an arena where a visual politics of the body meets innovations in audio-visual and cybernetic biotechnology, Preciado privileges the dildo above all else as a prosthetic or plastic form of resistance to the disciplinary production of sexuality, which rejects all historical narrative attempts at naturalising sex and genitals within society.[21] For Preciado,

15 Rajendiran, "Sex Determination and Differentiation in Teleost," 2.
16 Charles Molnar and Jane Gair, *Concepts of Biology – 1st Canadian Edition*, BCcampus, accessed on June 2, 2023. https://opentexttbc.ca/biology/
17 Robert H. Devlin and Yoshitaka Nagahama, "Sex determination and sex differentiation in fish: an overview of genetic, physiological, and environmental influences" *Aquaculture 208* (2002): 201.
18 Liu, "Sexual Plasticity", 172.
19 Preciado, *Countersexual Manifesto*, 20.
20 Ibid, 5.
21 Paul B. Preciado, *Testo-Junkie: Sex, Drugs and Biopolitics in the Pharmacopornographic Era* (New York: The Feminist Press, 2013), 72.

prosthetic or plastic knowledges or objects in the world, such as the order of the dildo, 3D bioprinting, and countersexual somatic practices, open a radical terrain for the invention of new organs and desires.[22] The dildo, as an artificial replica of the penis, operates as "the carnal plasticity of [which] destabilises the distinction between imitator and imitated" at a time when identity politics continuously attempts to capture and control all somatic forces of pleasure.[23] The apparent banality of its material form, Preciado argues, inserts a kind of anti-castration conversion or experience of non-identitarian politics into the opening of sexuality itself.[24] As Preciado writes:

> The dildo evades the disjunctive to have and to have not: it does not belong to the ontology of the essence or to the order of property. The dildo is and is not an organ that, although belonging to someone else, can't be fully owned. The dildo belongs to an economy of multiplicity, connection, sharing, transference and usage. The dildo refuses to be inscribed into the body to create organic wholeness or identity. It stands on the side of dispossession and nomadism.[25]

As such, the dildo in Preciado's framework arguably reveals the supplemental constructedness that characterises heterocentric forms of sexual expression and displaces the organic or natural centre of sexual reproduction.[26] In this sense, the sexual plasticity of the dildo as an object can be thought of as an alternative orientation to power, pleasure, desire and knowledge that resists the confines of patriarchal biopolitical control.[27] In no uncertain terms, Preciado tells us that the dildo is only a plastic reference of power and sexual arousal, while simultaneously "betraying the anatomical organ by moving into other spaces of signifying spaces."[28] In light of the current popularity of dildos and other non-phallic sex toys manufactured and distributed by the sexual wellness industry, sexual plasticity itself appears to be more culturally enmeshed with the human body than perhaps previously thought.

PLASTIGAMETES

In this section, I zoom further in on the body, to look closer at the interface between plastic bits and sexual parts on a more biomolecular level, by comparing the pollution of the human gamete with a key material artifact or object that highlights humanity's pollution of the ecological world. In 2014, the *Geological Society of America* published an article investigating the increased levels of pollution in the last few decades and the impact of plastic accumulation on microorganisms and their ecosystems.[29] While carrying out fieldwork on Kamila Beach, Hawaii, researchers noted the appearance of a new "stone" that had washed ashore, a kind of mineral matrix of coral, shells, beach sediment, basaltic lava fragments and wood debris fused together by various kinds of melted plastic. The team named these stones "plastiglomerates" to describe the indurated,

22 Preciado, *Countersexual Manifesto*, 14.
23 Preciado, 28.
24 Ibid.
25 Ibid.
26 Reuben L. Goldberg, "Even This Review Is a Dildo: On Paul B. Preciado's Countersexual Manifesto," *LARB: Los Angeles Review of Books*, February 16, 2019. https://lareviewofbooks.org/article/even-this-review-is-a-dildo-on-paul-b-preciados-countersexual-manifesto/
27 Jack Halberstam, "Foreword: We Are the Revolution! Or, the Power of Prosthesis" in *Countersexual Manifesto* by Paul Preciado, trans. Kevin Gerry Dunn (New York: Columbia University Press, 2018), ix.
28 Preciado, *Countersexual Manifesto*, 28.
29 Patricia L. Corcoran, Charles J. Moore and Kelly Jazvac, "An anthropogenic marker horizon in the future rock record", *GSA Today 24*, No. 6 (Summer 2014): 5-6. doi: 10.1130/GSAT-G198A.1.

multi-composite material formed by an agglutination of rock and molten polymers.

Embrittled netting, pellets, confetti, plastic lids and tubes all represented the main source of fusible plastic which agglutinated with organic matter into a highly dense hybrid material. While the island of Hawaii itself is alive with volcanic activity, the study suggested that the appearance of plastiglomerates was not the result of interactions between molten lava and polymer.[30] Rather, the research team concluded that plastiglomerates found on Kamilo Beach were formed anthropogenically, mainly from the burning of plastic at campfire sites.

"As much as we might like to think of substances like plastiglomerates as one thing," Heather Davis writes in *Plastic Matters*, "these are not two substances glued together […] it cannot simply be separated out, cleaved from other forms of materiality, not two distinct classifications of substances."[31] Plastiglomerates are object lessons about the plasticity of plastic. While Malabou thinks of plasticity as the capability of receiving and giving form, Davis argues that the visual weight of these hybrid-rock formations illustrates plastic's ability to morph and penetrate virtually all environments.[32]

While the material reality of plastiglomerates represents a worrying sign of humanity's anthropogenic impact on the environment, I would equally argue that the rise of microplastic pollution represents a troubling anthropogenetic marker in the planetary timeline. In other words, the fact that nanoplastics now easily penetrate and reside in the cell walls of the human body, becoming enmeshed within the flesh, demonstrates how the human body itself is forever marked by plastics. Recent studies in public health have evidenced the certainty of microplastic accumulation in human tissue, primarily incorporated through food and liquid ingestion. In fact, key research investigating the growing levels of infertility among men and women found that the bodily accumulation of microplastic was having adverse or deleterious effects on individual reproductive health on a global scale.

In particular, research into the increased prevalence of infertility among men found that a continual rise in impaired spermatogenesis was in fact the result of chemical exposure from microplastics within the testes themselves.[33] Traditionally, successful human reproduction relies on the production of high-quality gametes. However, exposure to the plasticizer bisphenol A, a chemical substance used in the manufacturing of rigid plastic and resin, in the testes was recorded as negatively affecting spermatogenesis, impairing the formation of blood barriers and interfering with the expression profiles of non-coding RNA and sperm quality.[34] In fact, further studies conducted in Toluca Mexico within the last few years have evidenced that prenatal exposure to phthalates, a group of chemicals used to enhance plastic's durability, was associated with decreased anogenital distance and penile size among male newborns.[35]

30 Corcoran, "An anthropogenic marker horizon in the future rock record," 6-7.
31 Heather Davis, *Plastic Matter* (Durham and London: Duke University Press, 2022), 41.
32 Ibid.
33 Stefania D'Angelo and Rosaria Meccariello, "Microplastics: A Threat for Male Fertility", *International Journal of Environmental Research and Public Health 18*, No. 5 (Spring 2021): 1. doi:10.3390/ijerph18052392
34 ibid, 4.
35 Lilia Patricia Bustamante-Montes, Maria A. Hernández-Valero, Delia Flores-Pimentel, et al. "Prenatal exposure to phthalates is associated with decreased anogenital distance and penile size in male newborns", *Journal of Developmental Origins of Health and Disease 4*, No. 4 (Autumn 2013): 300-301. doi:10.1017/S20401 74413000172.

Microplastics equally pose significant risks to female reproductive health and sexual organs. For decades, vaginal microbiomes have been exposed to microplastic fibres and nanoplastics produced from degrading pads or super absorbent tampons, which act as carcinogenic elements and toxic risks of sepsis.[36] Sample analysis of follicular fluid has evidenced the adverse impact of microplastics on female reproductive health, where the presence of synthetic biopolymers were shown to have negatively compromised gamete function in vitro. In fact, a recent study published by *Environment International* revealed that microplastic fragments were detected for the first time in human placenta, where microspectroscopic analysis of six samples collected from 'uneventful' pregnancies identified all the 'plasticenta' particles to be pigment in origin: man-made coating, paints, adhesives, plasters, finger paints, polymers and cosmetic products.[37]

Aside from humans, microplastics are equally adversely impacting the internal workings of other vulnerable species. PCB or polychlorinated biphenyls, which are carcinogenic compounds used in industrial products, are having a profoundly negative effect on bone density among already endangered species, namely polar bears.[38] [39]Not only are the toxic chemicals released by polychlorinated biphenyls causing polar bears to develop general osteoporosis, they are also causing osteopenia; a condition that weakens the baculum or 'penile bone' (commonly found in primates, rodents, bats and sea lions) to the point of breaking.[40] Across species, microplastics are becoming enmeshed with the variability and plasticity of sexual living and reproductive health, a precarious and troubling new micropolitical development between plastics and gametes that I refer to as plastigametes.

Plastigametes, on a microscopic level, represent a potentially irreversible interface between genitals and plasticity. Towards the beginning, I inferred that 3D bioprinting is emblematic of our transhumanist capacity to rewrite sex itself. However, the presence of plastigametes in reproductive biology, as outlined by numerous studies conducted in the last few years, represents a form of bioprinting already taking place at the heart of sexual parts. Within the body, microplastics seem to be intimately involved in processes of deletion and erasure, effectively damaging natural tissues and the viability of high-quality gametes used during sexual reproduction.

Polymers are implicated in a process of biomolecular modelling, moulding the future lives of prospective offspring, with toxic and deadly consequences. Sexual plasticity, in this sense, suggests a biotechnology that seemingly targets the heterocentric norm of sexual reproduction, yet to the point where plasticity itself is beyond all form of control or intervention. The presence of microplastic pigments, confetti, pellets, coatings, adhesives and varnishes that interrupt and interfere with the DNA-RNA coding of human cells and gametes suggest serious attention is again required regarding the fundamental question

36 Leonardo Pantoja Munoz, Alejandra Gonzalez Baez, Diane Purchase, et al. "Release of microplastic fibres and fragmentation to billions of nanoplastics from period products: preliminary assessment of potential health implications", *Environmental Science: Nano 9*, No. 2 (2022): 606. https://doi.org/10.1039/D1EN00755F

37 Antonio Ragusa, Alessandro Svelato, Criselda Santacroce, et al. "Plasticenta: First evidence of microplastics in human placenta", *Environmental International 146* (2021): 1. https://doi.org/10.1016/j.envint.2020.106274

38 Tobias Daugaard-Petersen, Rikke Langebæk, Frank F. Rigét, et al. "Persistent organic pollutants, skull size and bone density of polar bears (Ursus maritimus) from East Greenland 1892–2015 and Svalbard 1964–2004" *Environmental Research 162* (2018): 74. https://doi.org/10.1016/j.envres.2017.12.009

39 Ibid.

40 Kirillova, "Bioethical and Legal Issues in 3D Bioprinting", 13.

of being and its purpose or impact in an already damaged world.

CODA: METAPLASTICS

Returning to the opening section on bioethics and bioprinting, Preciado's aforementioned frustration with ethics committees that prohibit or resist 3D bioprinting of sex organs might seem to now garner logical merit when considering the existing infiltration of micro plastics in genitals. Moral arguments that seek to restrict bioprinting argue that an increased digitalisation of the 'natural' body risks significant breaches in confidentiality and privacy on the most intimate of levels. 3D bioprinting requires modelling and moulding of individual organs using computer-based technologies which are just as vulnerable to data leaks and viral attacks as other digitized systems. Another concern for bioethicists is the potential duplication of specific 3D models without direct consent from human donors. The controversy surrounding the distribution and testing of Henrietta Lacks' cancerous cells during the 1950s, a historic breakthrough in biological research achieved without Lacks knowledge or consent prior to her death, still informs many bioethical challenges to this day.

However, 3D bioprinting does offer viable options for trans and non-binary folk to design, mould and model organs that affirm a sense of self or being. The potential commercialization of software which enables public access to 3D biotechnologies provides the somatic building-blocks for so-called damaged or lost bodies to trial and test. However, bioprinting does not eliminate the risk of hereditary diseases. Artificial ovarian technologies may still contribute to the transmission of genetic variants associated with cancer.[41] Further still, the commercialization of 3D bioprinting might equally lead to issues of social stratification, where the traditional model of organ recipient lists could potentially become replaced by a capitalist marketplace of organ distribution.[42] Yet, Preciado remains convinced that the only viable path to liberating the productive forces of desire is to equip the followers of a countersexual revolution with the tools to invent new bodies freely and without constraint.

Plastic bits will continue to constitute our genitals and cells for years to come, and sexual plasticity will live on as a hotbed of debate and divisive rhetoric. While microplastics continue to shrink our genitals and destroy individual reproductive viability, conservative commentators continue to defend policies and legislation which privileges sexual presentation at birth, ultimately excluding some of the most vulnerable bodies in society. Legal definitions of sex in Western countries have become more plastically rigid in the last few years, a political shift that illustrates the re-erection of puritanical conservatism at the heart of neoliberal democracies.

Perhaps the knowledge of our evolving biomolecular plasticity might indeed soften the reformation of biological determinism on a macropolitical scale. Fertility itself is falling victim to the toxic effects of plastic's malleability and permanence. Modern anatomy is steadily becoming desacralized by the accumulation of plastic debris in the body. If heterocentric regimes wish to rescue 'natural' reproduction from its presumptive demise, they must begin meaningful work on plastic's impact on the planet. Until then, we exist in a time of sexual plasticity, where transitional fish and hybrid rocks teach us important lessons about how to be responsible to others on an already damaged planet. It seems only reasonable that we extend legal protections

41 Ibid.

and medical means to all bodies that freely and willingly wish to transition or change, to mould and model their respective forms autonomously and without persecutions or reprisals, to shape new plastic definitions of sex that remain unknown.

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