The Eloquence of Speechlessness

Hybridity, Sexed Bodies, and Astonishment in Kant’s Theory of Epigenesis

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Abstract

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The embryological theory of epigenesis emerged during the late eighteenth century as one of the major narratives in European naturalism and political anatomy. Yet the concept surfaces in gender historical research on the period in footnotes and cursory remarks. This paper interrogates why epigenesis has been eradicated from the historical consciousness of today’s scholarship on gender politics. By honing in on the weirdness, a term borrowed from Lorraine Daston, in and of Immanuel Kant’s (1724-1804) theory on animal generation I show how an alertness it requires a re-evaluation of views on “political anatomy” taken-for-granted in scholarship, but also of Kant’s philosophy itself. The endeavour is divided into three main sections.

In the first, I situate the failure of Kant-scholars to, in the words of John H. Zammito, “stabilize” epigenesis by exploring the hitherto unacknowledged peculiarity of Kant’s use racial hybridity to ‘prove’ the theory. In the second, the analysis departs from the notion ‘modern sex difference’ and show that a reading of epigenesis requires a re-thinking of sexed bodily identity in terms of conflict and contradiction. The third section reads this strife in light of Kant’s experience of “astonishment”, a cognitive mode, I argue, designed to resolve both physiological and ideological inconsistencies. The antinomy of sex differentiation is in a concluding section juxtaposed with Kant’s phrase “eloquent speechlessness” in which the gender practice activated in the writing of, about, and on epigenesis is compared to the structure informing moral philosophy’s definition of lies.

Keywords: Immanuel Kant (1724-1804), epigenesis, astonishment, weirdness, hybridity, manliness, masculinity, gender, sex difference, republicanism, bio-politics, horticulture, life science, vitalism, teleology, Bildung, organization.

Conventions


Single quotation marks will be used to highlight words, phrases and concepts I distance myself from. Regular quotation marks will be used in a regular fashion.

Quotes will be recycled; I disclose source information the first time of appearance only.
Introduction: Re-activation

How does one introduce an essay on the extra-ordinariness of organic life? A personal account on one’s own failure to adequately cognize how biological processes steers one’s body, perhaps? Such a beginning could thematize for the reader how life still is basically a mystery, despite the finds and successes of modern biology. I could do this easily just by giving an account on such a banality as my heartbeat. I know how it works; but I do not know why. But to introduce an essay on the mystery of life this way would raise a peculiar problem: as I begin my account I inevitably forget the extra-ordinariness I was supposed to communicate. I reflect upon the significance of my immediate embodiedness, but when I reach the end of this sentence, the experience of something worth reporting on will be is gone. Distracted and preoccupied with how to continue this text, I no longer think or care about the problem I started out with. Thrown back into my everyday reliance upon biology to execute its tasks without my immediate attention, I move on and forget. Though I do not fully comprehend how my body regenerates when hurt or how it is capable of reproducing itself, I am seldom bothered or bewildered by these mysteries. I am used to them and take them for granted.

To write about the uncanniness of biological life is the most effective way to dispel just the experience one wished to write about. The act of writing ruins the event written about. However, an introduction thematizing the inevitability of commonality, how I must take biology for granted when writing about why we shouldn’t, would be a perfect way to present this paper’s topic. This is how Immanuel Kant (1724-1804), the German philosopher, reflected upon a similar problem over two hundred years ago.

[W]e no longer detect any noticeable pleasure in the comprehensibility of nature /…/; but it must certainly have been there in its time, and only because the most common experience would not have been possible without it has gradually become mixed up with mere cognition and is no longer specially noted.1

Kant postulates a mythical time in which nature’s ingenuity still provoked the pleasure contemporary society had lost its ability to experience due to routine and daily bustle. Matters were made worse by the complete inability of then dominant sciences to appreciate what Kant’s calls life’s “wonder” (Bewunderung). “And even if I could”, he laments in the early Der einzig mögliche Beweisgrund zu einer Demostrationen des Daseins Gottes (1762),

“examine all the springs and tubes [Federn und Röhren[, all nerve fibers [Nervengefäße], levers [Hebel] and mechanical contraptions [Einrichtung] of a [living] thing, nonetheless, the wonder would remain.” Kant’s view on life was inspired by his reading of Georges-Louis Leclerc, or Comte de Buffon (1707-1788), and Pierre-Louis Moreau de Maupertuis (1698-1759), the two Frenchmen revolting against mathematical mechanism during the middle of the eighteenth century by seeing principles of life in nature where traditional naturalists saw levers and pumps.

But, unlike the two Frenchmen, Kant was not a practicing scientist. For a transcendental philosopher, the important task was not to determine what life was, but how one should react to it. And the proper way to do this was to retrieve just the kind of awe and astonishment humans had experienced in mythical times. The experience of life should resemble, Kant argued, the experience of the religious mystery. “We normally have no misgivings in asking novices in religion to believe in mysteries”, he writes, “since the fact that we do not comprehend them, i.e. that we have no insight into the possibility of their object, could just as little justify our refusal to accept them as it could be the refusal to accept (say) the capacity of organic matter to procreate – a capacity which likewise no one comprehends yet, though it is and will remain a mystery for us, no one can refuse to accept.”

The organized being’s ability to reproduce itself fascinated because it allowed the philosopher to, by way of a sustained contemplation, forfeit cognitive grasp and surrender to inexplicableness. Astonishment was a privileged form of cognition. It sharpened the senses, enabled one to perceive the extraordinary in the ordinary and unravel mysteries in common-places. It is to that retrieval Kant dedicated his work on natural science. And it is to that dedication I devote the present study.

Epigenesis and Weirdness: Purposes

A newcomer in the world is astonished by everything; but he who has become acquainted with the course of things through varied experience makes it a principle to be surprised at nothing /.../ (Kant, Anthropologie in der pragmatischer Hinsicht, p. AA:VII:261).

Kant wanted to disturb and unravel the ordinariness of the common and recognizable: can such an approach have any methodological import in an historical analysis as well? I believe

2 Kant, Der einzig mögliche Beweisgrund zu einer Demostrationen des Daseins Gottes (1762), p. AA:II:152.
so. In this paper, in which I study Kant’s view on sexed embodiment\textsuperscript{4} and organized beings, I submit my material to an examination mimicking my object’s own. My intention is not to develop a Kantian form of historiography. Nor does the desire to expose myself to a Verwunderung when encountering past events stem from a need to convince others of the ‘beauty’ of Kantian philosophy. That, I believe, wouldn’t be particularly unraveling nor especially new (though it would, perhaps, be disturbing). What I do believe is that, today, research in philosophy, history, social sciences on Kant’s philosophy suffers from a problem, a problem resembling the kind Kant believed lulled his contemporaries into taking for granted what really should be experienced as extra-ordinary.

In *The Sciences in Enlightenment Europe* (1999), Lorraine Daston cautions students of eighteenth century science to be “alert to the weirdness, the non-self evidence of the Enlightenment.”\textsuperscript{5} The warning echoes the call voiced by historians such as Roy Porter, Stephen Shapin, and Jacques Roger during the late 1970s and 1980s for a re-thinking of the Enlightenment, a project seeking to differentiate and complicate an overly simplified conception of the late eighteenth century. Kant’s philosophy does not self-evidently lend itself to such a reading. Is he really weird and/or non-self evident to a modern day reader? At first glance the question looks almost ridiculous. Is there any historical event or character more our own than him? We look to critical philosophy, the republican Rechtslehre, the treatise on perpetual peace and universal, human rights, the ‘philosophy of biology’\textsuperscript{6} (and, indeed, the geo-political sex-specificity of all the aforementioned) and see our own ideals and problems reflected back to us. This, one might venture to say, is the time and place when, as Michel Foucault has suggested, modernity happened, when Man became the “sagittal”, self-

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\textsuperscript{4} Embodiment is a term used in feminist theory to re-configure subjectivity as materially situated. I base my understanding of it on Rosi Braidotti’s definition: “The starting point for most feminist redefinitions of subjectivity is a new form of materialism, one that develops the notion of corporeal materiality by emphasizing the embodied and therefore sexually differentiated structure of the speaking subject. . . . The body, or the embodiment, of the subject is to be understood as neither a biological nor a sociological category but rather as a point of overlapping between the physical, and the sociological . . . . In other words, feminist emphasis on embodiment goes hand in hand with a radical rejection of essentialism (Rosi Braidotti, *Nomadic Subjects: Embodiment and Sexual Difference in Contemporary Feminist Theory*, Colombia University Press (New York, 1994), p. 3-4).”


\textsuperscript{6} Kant-scholars still use the term “biology” to characterize Kant’s work on organized beings. The term did not exist at the time. Michel Foucault pointed this out during the 1960s: “We have sought to write histories of biology in the eighteenth century; but this does not take into account that biology did not exist and that a division of knowledge familiar to us for more than fifty years cannot apply to an earlier period. And if biology was unknown, there was a very simple reason, namely that life itself did not exist. There were only living things who appeared through the epistemological lattice of natural history (*L’

reflecting being asking questions about ‘conditions of possibility’, a pointing of the arrow to the self still haunting our own finite timeliness.⁷

And yes; it would be ridiculous to not see in Kant precisely that event. But underneath the screen of sameness, resemblance and homeliness projected upon the late eighteenth century – there stirs historical specificity: past’s life of its own. In a recent effort to deepen the critique initiated by Daston and her predecessors to explode the ill-conceived understanding of the Enlightenment as one coherent monolith serving as the back-drop for our own time, Peter Hanns Reill introduces the term “Enlightenment Vitalism”.⁸ The concept, he claims, helps historians to think outside the usual register imposed on the late eighteenth century by resisting the temptation of seeing history teleologically. “[Enlightenment Vitalism] enables us to abandon explanatory categories such as pre- or proto- Romanticism, based on a teleological reading of texts, by recognizing the regnant discussion of life and organization central to the Enlightenment. It allows us to better perceive the uniqueness of Enlightened thought, giving us pause before we make it our immediate contemporary, of automatically associating it with ‘modernity’. It uncovers the importance of large scale thought patterns that disciplinary studies have hidden or localized. /…/ On the broadest level it makes the idea of a single ‘Enlightenment project’ problematic, without surrendering the idea of a existence of large transnational discursive realms within Enlightenment’s domain.”⁹

Reill’s conceptual innovation has flaws. But the notion of a form of Enlightenment different though neither counter to the major trends of the project nor prototypical of what would later emerge as Romanticism is helpful when retrieving the historical specificity of Kant I am interested in. This is especially so since the weirdness of his I analyze takes place exactly within the “regnant discussion of life and organization” Reill lists as one the characteristics aimed at with his concept: epigenesis or “self-generation” (Selbstgeschöpf), the theory on, but irreducible to, animal generation dominant during the German Spätaufklärung.¹⁰ We have already seen how Kant reacted to the mathematical dogma of mechanism’s rationalization of nature. We have also seen how he read and was inspired by

⁷ Foucault uses “sagittal” to characterize Kant’s influence in his lecture at Collège de France, 1983. The paper from which I have quote the concept was originally published as “Qu’est-ce que les Lumières?” in Magazine littéraire, no. 207, 1984, p. 4.
⁹ Ibid., p. 15.
¹⁰ The division of the Enlightenment into “early” “high”, “late” periods is problematic. I characterize the period under the discussion here as Spätaufklärung, or Hochaufklärung, for no other reason than that I find the categories useful as a heuristic conventions. The notion of a “Sattelzeit” used by the practitioners of “Begriffsgeschichte” arguing that the shift into modernity happened sometime during 1750s and 1850s is interesting, but I will not conduct my reading of Kant along those lines.
the French naturalism of Comte de Buffon and Maupertuis – how they refused to reduce nature to levers and pumps by conjuring forth a vitalism in living beings, plants and animals alike. Epigenesis is the semantic space making these moves possible.

So, what is epigenesis? Epigenesis is the theory answering, in the words of historian Thomas S. Hall, “one of the oldest and most tantalizing of biological problems.” The problem Hall refers to is the question how “an initially amorphous starting substance can achieve explicit form”, a question occupying centre-stage in the discussion among eighteenth century naturalists. The process turning homogenous masses into distinct shapes generated, epigeneticists claimed, “each [newly produced] embryo through gradual development from unorganized material.” The characterization of epigenesis as a question of organization is Shirley Roe’s, a historian of embryology, and highlights one of two presuppositions informing the discursive formation of epigenesis. The other one concerned how the productive causes generated the embryo. On this, theorists were unanimous: it could be traced to both parents’ coital contribution, a radical idea at the time. Kant subscribed to both theses. They surface often in his works and regardless of the topic dealt with. One finds comments on epigenesis in the three Critiques, in lecture notes on anthropology, and in the major works on moral philosophy. Kant never wrote specifically on the theory, but every topic could be written in specific connection to it.

The two claims of epigenesis may not look spectacular in light of today’s biological science. But, in late eighteenth century naturalism, it was. Epigenesis abruptly replaced traditional and theological ways of perceiving how nature worked. The historian of science, Helmut Sievers-Müller, calls its re-introduction “an entirely new method and legitimization” in natural science. He is right for two reasons. Epigenesis was a re-introduction because it retrieved notions of organic life hitherto suppressed during the Radical Enlightenment, ideas that could be traced to the authorities of Antiquity – Aristotle, Galen,

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11 Epigenesis is not dead. The theory is widely used in today’s biological science, especially among philosophers of biology seeking to complicate evolutionary frameworks. See Jason Scott Robert’s *Embryology, Epigenesis, and Evolution: Taking Development Seriously*, Cambridge University Press (Cambridge, 2006).
and Hippocrates – disparaged and contested earlier the same century. Sievers-Müller is right also because epigenesis fundamentally changed not only how nature was believed to work, but what nature ultimately was. To the theologically informed physiology, preformation, dominant before the middle of the eighteenth-century, the idea of a temporally self-differentiating emergence of organs hit like a veritable bombshell: nature, previously believed to be powered by a God creating all life already formed, now both could and did give birth to its own beings, without recourse to external sources for causation. Nature, epigeneticists wrote, was energized by an Aristotelian *entelekai*: an immanent life-force, or Bildungstrieb, purposively steering and generating living beings.

The epigeneticist’s dual subscription to notions of bi-parental production and embryological gradualism is a common-place in scholarship. It is therefore surprising that research on how Kant implemented epigenetic ideas is still in a state of utter confusion. Today’s Kant-scholars are breaking their backs in philological acrobatics trying to figure out what the concept may or may not have to him. One of the leading researchers in the field, John H. Zammito, review in a recent article assessing the current state of research pin-points the problem plaguing recent interpretations: “neither the general concept of epigenesis nor its [sic] place in Kant’s thinking“, he claims, “has ever been stabilized in scholarship.”

The diagnosis assumes the problem of the theory’s instability to be a problem of thoroughness, as if a definition of higher precision and accuracy awaited the more fastidious historian to unearth – if only he or she would shape up and try harder. I claim the opposite.

Zammito addresses a lack in dire need of attention among scholars, but I would like to rephrase the problem he identifies. Is coherent stability always desirable for an historical analysis? What if the theory in question is not stable to begin with? Or worse: what if the definition of stability today is not the same as the one employed over two hundred years ago in Königsberg, Prussia? This is how the weirdness of Kant’s epigenesis enters the equation. From the perspective of modern biology, it would be controversial to not agree with the claim that both parents contribute to their offspring’s bodily material, just as it would be controversial to not agree that organs are not preformed but, once generated, gradually formed through a process of differentiation. It would, however, be controversial to agree with Kant that these two modes of embodiment relate to each other as two totally incommensurable principles of anatomical stratification that can only be yoked together within the same

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discursive field if one assumes the existence of a super-sensible sphere inaccessible to human cognition. Bi-parentality and embryological gradualism did adhere to the same principles bodily differentiation we assign to them today, but, for Kant, these related to each other as if they were mutually exclusive yet harmonizing. The effect produced is an account of nature referring to processes familiar to us, but in a way resembling the locution of, in Peter McLaughlin’s choice of words, “a psychopath”. The theory, in short, is close to home yet strangely indecipherable.

This paper does not attempt to stabilize epigenesis. It wants, instead, to see if the interpretative mischief it causes can be read as endemic to theory’s epistemic configuration as such. It asks how resistance to narrative closure can be accommodated for within an historical analysis without thereby losing grip on empirical coordinates. A reading sensitive to the familiar yet unfamiliar in Kant is especially acute within socio-political contexts of geopolitical gender relations. As of now, the theory of epigenesis lives a peculiarly peripheral existence in gender historical studies on the late eighteenth century. One finds it in footnotes and one-sentence remarks, as if it were somehow marginal during this time. It wasn’t. Epigenesis may have predominately been a theory on animal generation; but, for Kant, no boundary existed between physiology and morality. The theory could explain such, for a present day reader, non-physiologically sounding ideas as “pure reason”, the “autocracy of happiness”, and the categorical imperative’s demand for universality. It is in this sense that the almost complete absence of interest in epigenesis is so odd. The theory is by far the most important notion making the migration from absolutist state power to the sexed “political anatomy” of republicanism possible and it is, in gender studies, by far the ideological construct most neglected and forgotten. Sievers-Müller, alone in pointing out the gender political implications of epigenesis, understates the case when saying that, apart from his own work on the topic, “an appraisal of the social context favoring the transition from preformationism to epigenesis” is “missing”.

Problems and Disposition

My intention in this paper is to assemble a dossier collecting Kant’s key statements on epigenesis and interrogate them in light of the two problems highlighted above. The analysis conducted is divided into three sections offering one argument each. In the first, “Hybrid Indications”, I show how the problem Kant-scholars experience when theorizing epigenesis can be helped by being inserted in Daston’s and Reill’s analytical framework. Epigenesis is here re-conceptualized so that the difficulties pertaining to an interpretation of it can be alleviated if not solved. The procedure continues in “The Two-Fold Interest of Reason”. In this chapter, I engage the question of stability head-on. By adding Kant’s view on the differences between “Naturgeschichte” and “Naturbeschreibung” to my analysis, I highlight hitherto unexamined complications of Kant’s epigenesis. Taken together, these arguments constitute a two-step program seeking to radically alter how, as a scientific concept, epigenesis can be understood today.

My main errand, however, will be to re-evaluate the emergence of what I referred to in the previous section as “political anatomy” in light of the instability of epigenesis. Sievers-Müller explains the lost account on the political importance of Kant’s theory on organic beings as result of negligence on behalf of gender scholars. But the fact of its absence is much simpler than that: the problem identified with epigenesis above does not fit. The primary purpose of this paper is to stress that an assessment of the incoherency of epigenesis may require of a gender political analysis a re-examination of two central events occurring during the late eighteenth century: the emergence of a ‘modern’ sexed bodily identity and sexed political agency (or practice). The historical research primarily aimed at with my critique concern the notion of an “invention of sex difference” popularized by scholars such as Thomas Laqueur and Londa Schiebinger. My two claims will be presented in the second and last chapter of the analysis – “Epigenesis and Ideology” and “Astonished”. But both takes place within the same theoretical framework used in my reading of gender politics: the field called Critical studies on Men and Masculinities, a wing to feminist gender research dedicated to the study of men “as men”. The perspective has never been directly used on Kant, so my reading treads untrampled soil in this regard.

By interrogating the concept of “manliness”, or “manhood” (Männlichkeit/Mannbarkeit) in my material, I argue for my first thesis by showing that the two fundamentals of epigenesis, bi-parentality and embryological gradualism, do inform the transformation of political life

associated with the late eighteenth century – how the invention of ‘modern’ sex caused politics to migrate into, in Londa Schiebinger’s words, “the fabric of the human body”24 – but that they does so in way subverting the key elements believed to be grounded at this specific juncture in time. How and why epigenesis does this can be traced to a statement Kant made during a lecture on metaphysics at the University of Königsberg during the winter semester of 1785.

[The system of epigenesis is now generally assumed, according to which the parents are the productive causes of the conception, and the young animal thus arises from the mixture [Mischung] of both sexes as a product. This is more likely, as already indicated by the mating [Paarung] of related kinds, e.g. donkey and horse, black and white human beings, the similarities of variations, in mules and mulattos, etc., etc., and so likewise the bastard [Mittelschlag] plants produced by related pollen.25

This is one example – a lecture transcript – of the kind of material in which one finds Kant’s thoughts on epigenesis. The statement claiming that epigenesis “is now generally assumed” connects four clauses, or tropes.26 I have italicized these in order to highlight how the semantic network of and in the theory functions by latching certain figures of speech onto each other whereby nature assumes, or is assumed to be of, a particular kind of operationality. The second and the last of these, the “mixture of both sexes” and the “variations of similarities”, will serve as the point of departure for my first claim regarding social contexts.

For my thesis regarding gender practice, I examine the first and the second clause, “productive causes” and “as indicated by the mating of related kind”, by thematizing the way Kant ‘proves’ epigenesis by way of reference to racial hybridity, the ‘bastard mulatto’. Racial hybrids played a significant, though insufficiently acknowledged, role in the turn to immanent causality during the late eighteenth century. The assumption granting hybrid physiologies its “indicative” capacity rested upon the newly articulated idea common among physical anthropologists that the human species consisted of four races – the “White”, the “Negro”, the

25 Kant, *Metaphysik Vigilantius*, p. AA:XXIX:1032. The student and dinner companion of Kant’s, Johann Friedrich Vigilantius (1757-1823), transcribed this passage during a course in metaphysics in 1785. Usually the dating of the lecture notes is hard to establish. In this case, however, philologists are lucky since Vigilantius thoroughly marked the date of his notes.
26 My use of trope should be read in conjunction with Judith Butler’s remark, in *The Psychic Life of Power: Theories in Subjection*, Stanford University Press (Stanford CA, 1997), apropos Hayden White’s use of the term in *Tropics of Discourse*, John Hopkins University Press (Baltimore, 1978): “Tropes are ‘derivations’ from customary language, but they also generate figures of speech or thought /.../. In this sense, a trope can produce a connection between terms that is not considered either customary or logical. For our purposes, this means that a trope operates in a way that is not restricted to accepted versions of reality. At the same time, a trope cannot operate, that is, generate new meanings or connections, if its departure from custom and logic is not recognized as such a departure. In this sense, a trope presupposes an accepted version of reality for its operation.” (*The Psychic Life of Power*, p. 201).”
“Hunnish”, and the “Hindu” – that could be “mixed” in various ways and constellations. Research on this is in Kant-scholarship practically non-existent. I go some lengths to remedy this; but my primary interest in Kant’s fascination with hybrids concerns something else: his masculinity, or gender practice.

R.W. Connell, a leading theorist in Critical studies on Men and Masculinities, employs masculinity as an analytical concept designed to interrogate men’s “gender practice”. The term is workable in Kant’s case because it highlights not an ideal of how men and women should be and behave, but what Kant is doing when writing these social prescriptions down. How he practices gender, however, drastically differs from Connell’s understanding of masculinity. Connell departs from the idea that masculinity refers to male bodies, but in Kant’s case it precisely because of the instability of epigenetic embodiedness that writing is initiated at all. The philosophical text, it will be shown, is written to attain a coherent (epigenetic) embodiment; it does not emerge from it. The paradox of the move relates to the troublesome hesitancy scholars identify in Kant’s appropriation of epigenesis – why the theory can only be “assumed” to be correct because hybrid physiology “indicate” so. In the concluding section of this paper, I trace the instability of epigenesis to the trope of astonishment and connect the two aspects of animal generation to what I will call a contradiction of Kant’s gender practice. In doing so, my inquiry asks in a concluding section if Kant’s astonishment may be not so much a scientific trope as an ideological strategy conjured forth to handle to politically inconvenient antinomies of bodily coherence.

The three arguments briefly introduced just now hones in on a discursive field untouched by historical analysis. I pursue my arguments by reading a selection of the pieces and fragments Kant wrote on animal generation in light of the four clauses italicized above, and tie them together in a re-constructing effort to make explicit complications hitherto passed over by scholars in the field. The attempt requires a strategy. I began this section by claiming that I would be mimicking Kant’s experience of unfamiliarity in order to sensitize my reading to extra-ordinariness. In this paper I re-read Kant by employing his technique as my own and appropriate the cognitive mode of “astonishment” as a metaphor for historical analysis.

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27 Kant also calls the “Hunnish” race “Mongolian or Kalmuckian”, and the “Hindu” – “Hindustani”. See Kant’s first paper on “the natural history of Man”: Von der verschiedenen Racen der Menschen (1775), p. AA:II:432.

28 Kant’s theory of race is, of course, studied, but analyses of the peculiar role of hybrid physiology in it are scarce. An exception is Peter McLaughlin’s good “Kant on Heredity and Adaptation” in Staffan Müller-Wille & Hans-Jörg Rheinberger Heredity Produced: At the Crossroads of Biology, Biology, Politics, and Culture, 1500-1870, The MIT Press (Cambridge & London, 2007).

Astonished by astonishment, I intend to exhume an historical figure or assemblage of texts forgotten and obscured by the domesticating gaze we fix on the late eighteenth century. My ambition is to show that Kant, the point marking ourselves off from our historical others, can also be alter and inexplicable when viewed from a present day perspective. In other words, the purpose of this paper is to stress the need to again enact the character introduced in the quote beginning this section: “Ein Neuling in der Welt” – surprised by everything, acquainted with nothing.

Theoretical Positions: Ideology, Bio-politics, and Gender

I have already indicated how I position myself within Daston’s and Reill’s historiographical attempt to re-evaluate the late Enlightenment. It is now time to discuss some of the reading techniques I will employ. In order to navigate along the chart mapped out above, we need to familiarize ourselves with earlier research traditions and the theoretical options on offer therein. The two sections below identify three theoretical positions and three research traditions informing my reading.

In the previous section I referred to the “social context” of epigenesis when explaining how Kant’s view on animal generation participated in politics. The phrase needs commenting. Reductively speaking, the present analysis departs from two research traditions of the history of eighteenth century life science: an Anglo-Saxon and a continental, or French. In my reading of Kant I situate myself within both spheres; but in terms of social contexts I definitely belong more in the latter than in the former. The French school of history of science related to the topics dealt with in my analysis originates from Georges Canguilhem’s magisterial *Le normale et la pathologique* (1966). The impact of the work is traceable in Jacques Roger’s classic *Les Sciences de la vie dans pensée française au XVIIe siècle* (1963), and François Jacob’s *La logique du vivant: une histoire de l’hérédité* (1970), two text of considerable importance to my own. For our present purpose, however, the widely influential view on eighteenth century science that Michel Foucault, Canguilhem’s student, introduced plays a far more central role. The analysis of Kant conducted in this paper makes heuristic use of notions such as discourse and epistemology, but especially two terms from the French camp bears special notice: Canguilhem’s ideology, and Foucault’s bio-politics.

“Ideology”, Canguilhem writes, “is an epistemological concept with polemical function, applied to systems of representation that express themselves in the languages of politics, science, ethics, religion, and metaphysics. These languages claim to express things as they
are, whereas in reality they are means of protecting and defending a situation, that is, a particular structure of the relation between men and things.\textsuperscript{30} The definition of ideology joins together Gaston Bachelard’s influential work on the history of science, and Karl Marx’s political thought. I do not engage my material with this overburdening luggage of theory. To read Kant through ideology is a useful way to spot contextual utilizations of science and vice versa, and it is in this very restricted sense I will be using the concept. An examination of ideology allows my reading to interrogate how epigenesis establishes a “particular structure of the relation between men and things”. In this sense, the concept can be deployed to pose certain questions to my material. How does epigenesis engage political questions and problems? How does it affect the social milieu, and how does the social affect it in return? My inspiration in this regard is Ludmila Jordanova who, in \textit{Nature Displayed: Gender, Science and Medicine 1760-1820} (1999), argues that the historian’s task should be “to show how ideas, and the means by which they are expressed, act as mediations of the social condition in which they exist.”\textsuperscript{31} This will be my first theoretical position.

The way science interacted with politics during the eighteenth century has been analyzed by historians in a wide variety of ways. Most researchers, however, base their theoretical framework on a common denominator: “political anatomy”. As indicated in the previous section, I am not different. I derive my understanding of the concept from Londa Schiebinger’s work on the eighteenth century in \textit{Nature’s Body: Sexual Politics and the Making of Modern Science}. According to her, the idea meant that “[t]he body – stripped clean of history and culture as it was of clothes and often skin – became the touchstone of political rights and social privileges” during this time.\textsuperscript{32} The analysis of political embodiment Schiebinger conducts is heavily indebted to Foucault’s notion of bio-power, the “regulatory technique of life” emerging during the eighteenth century to replace absolutism’s vertical mode of state power.\textsuperscript{33} The application of bio-politics was an attempt to regulate a generic “man-as-species” by way of an imposition of normative orderliness. Foucault writes: “Bio-politics deals with the population as a political problem, as a problem that is at once scientific and political, as a biological problem and as power’s problem.”\textsuperscript{34} This is how I see the interaction between epigenesis and politics. My second theoretical position consists in the

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\textsuperscript{34} Ibid., p. 245.
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effort to examine epigenesis through the lens of bio-politics, “[a] technology in which bodies [were] replaced by general biological processes”\textsuperscript{35}, and interrogate how these biological processes impacted politically in the nascent civil society of the late eighteenth century in Germany.

In “Problems and Dispositions” I referred to the research program called Critical studies on Men and Masculinities, a branch of gender studies analyzing questions of masculinity. My third theoretical position is based on two ideas common in the field: homosociality and masculinity. The first notion gained notoriety with the publication of \textit{Manhood in America: A Cultural History} (1994) written by the American historian, Michael Kimmel. Kimmel is one of the leading theorists of Critical studies on Men and Masculinities. His project, shared by most scholars doing similar research, consists in the effort to study men, as quoted earlier, “as men”. The usefulness of doing so may seem small or insignificant. Regular feminist research has, after all, always analyzed the relations of power constituent of men’s and women’s participation in larger structures of gender relations. The novelty of Kimmel’s approach is how it adds to men’s gendered being the internal relationality within their own social group, without thereby neglecting the heterosociality determining their relation to women.\textsuperscript{36} This is what is meant by homosociality.

The way homosocial relations structures men’s internal hierarchies of power is often studied in terms of a manly/unmanly distinction according to which men are socially organized in accordance with historically constructed ideals, or stereotypes/countertypes. The historian, George L. Mosse, does this in his influential \textit{The Image of Man: The Creation of Modern Masculinity} (1996), a study traversing the inception of modern manliness in late eighteenth century Germany to today’s flurry about the so-called “crisis” of manliness. Mosses’ stereotype/countertype distinction has been influential for research on manliness in a historical perspective, but it has also been subjected to criticism.\textsuperscript{37} For my purposes, I do neither endorse nor critique. In Kant, manliness is an empirical concept (Männlichkeit) used to describe certain processes in nature. I do not therefore apply “manliness” as an analytical concept. My purpose will be to see how the word interacts within the homo- heterosocial relationality constituted by the discourse of epigenesis.

\textsuperscript{35} Ibid., p. 249.
\textsuperscript{36} Michael Kimmel, \textit{Manhood in America: A Cultural History 2nd Ed.}, p. 2-4.
\textsuperscript{37} See David Tjeder’s \textit{The power of character: Middle-class masculinities, 1800-1900}, Stockholms Universitet (Stockholm, 2003), p. 10.
The second term I depart from is masculinity. As an analytical concept, masculinity is used in dramatically varying ways by researchers active in Critical studies on Men and Masculinities. The different applications of masculinity can be conflicting with and incongruent to each other, so there is no easy way to pin down what, exactly, is meant by the term. In this paper, however, I want to seize upon it in a highly specific fashion. In “Problems and Disposition” I referred to R.W. Connell’s definition of masculinity. This is what he writes more specifically: “[m]asculinity, understood as a configuration of gender practice /…/ is necessarily a social construction. Masculinity refers to males bodies /…/ but is not determined by male biology.” Connell safe vouches against essentialism in his definition by discarding biology as factor in gender practice. He does not, however, refrain from using commonsensical notions of males and females to explain who does what in gender relations. As a practice, masculinity is practiced by men. The same applies to Kimmel’s definition of how gender operates. He writes: “By gender I mean the sets of cultural meanings and prescriptions that each culture attaches to one’s biological sex.” Kimmel refers to a biological sex, but he does not think that factor to be determinant for the meaning of sex. He, like Connell and Mosse, sees gender relations as cultural meanings referring to males and females. It is this link between, on the one hand, masculinity as practice and, on the other hand, the male body as identity I want to interrogate in light of the two-fold problem of social context I identified in “Problems and Disposition”.

Earlier Research Traditions: Philology, Anthropology, and Manliness

According to Justin E. Smith, a historian of embryology, the problem of generation has attracted little or no interest from historians of philosophy because the topic is incorrectly assumed to “reside in one of the narrower alleyways of /…/ [the history of philosophy] and certainly not along one of its grand avenues.” The assessment may be right, but Kant-studies is still a pretty crowded place. To keep things tidy, I identify three fields of interest to my thesis.

Today’s research on Kant and epigenesis takes place within two different but sometimes overlapping spheres of scholarship. Both will be dealt with in the actual analysis, so I beg my reader to be patient and settle for a brief introduction only. I call the first field philological.

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Philologists interested in Kant’s use of epigenesis in philosophy study details: When did the concept first appear? How did it appear? In what context? The questions one can ask the material are many, and, as of now, no actual consensus can be established. Helmut Zöller is the undisputed champion of this kind of research. His “Kant on the Generation of Metaphysical Knowledge” (1988) maps every occasion epigenesis appears in Kant’s entire corpus. Of particular interest to my paper is the debate carried out in the annual *Kant-studien* during the 1960s to 1970s regarding the question of Kant’s presumed use of biological metaphors in philosophy. Arthur Genova’s and Julius Wubnig’s contributions, confusingly titled “The Epigenesis of Pure Reason” (1968) and “Kant’s Epigenesis of Pure Reason” (1974), to the (still ongoing) discussion is mandatory for every serious attempt to track epigenesis’ meaning and function in Kant. Other important works I rely upon but only use peripherally is Sven-Eric Liedman’s important but often overlooked *Det organiska livet i tysk debatt 1795-1845* (1966), and Timothy Lenoir’s *The Strategy of Life: Teleology and Mechanics in Nineteenth-Century German Biology* (1982). An important source of research is anthologies and theme issues in journals. The most recent of these is *Understanding Purpose: Kant and the Philosophy of Biology* (2007), an anthology collecting leading researchers on the topic of Kant and naturalism, and *The Problem of Animal Generation in Early Modern Philosophy* (2007), a work dedicated to matters related to the one dealt with here but covering larger segments of time than just Kant’s. In journals, especially no. 4 of 2006’s issues of *Journal of the History and Philosophy and Biomedical Sciences* (2006) assembles highly significant material. I mention anthologies and journals for a reason. Epigenesis is a peripheral topic even among Kant-scholars, so an abundance of monographical work does not exist here (yet). I will return throughout my essay to these various instances; but it is now time to introduce the second field doing work on Kant and epigenesis.

During the 1970s Anglo-Saxon research on Kant underwent a so-called ‘Anthropological Turn’. Inspired by Friedrich Kaulbach who, in the 1960s, read critical philosophy in light of works hitherto passed off as ‘informal’ and peripheral, Paul Guyer and a number of followers have tried to inverse the relation between the Kant of the Critiques and the Kant of less prestigious fields such as physical geography.41 By reading anthropology, a scientific discipline just emerging when Kant began publishing, as an “umbrella concept for [critical philosophy’s] whole enterprise”, scholars are today re-thinking the motivational grounds for

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the Königsbergian’s philosophical project.\textsuperscript{42} Epigenesis has a highly peculiar position within this turn. As a theory on animal generation, the concept had enormous importance for anthropological concerns, the informal side of Kant. But epigenesis surfaces alarmingly often also within the very heart of transcendental idealism: the three Critiques. As a bridging concept between the official and the unofficial Kant, epigenesis seems to hold the key research now needs to carry on with the re-contextualization of critical philosophy. It is for this reason that historians such as John H. Zammito engage the problem of epigenesis. His two works on Kant – \textit{Kant, Herder and the Birth of Anthropology} (2001), and \textit{The Genesis of Kant’s Critique of Judgment} (1993) – accompany me in my examination as references on key topics regarding my subject. But the field does not belong to historians only. Marcel Quarfood, Peter McLaughlin, and Susan Shell Meld: the list of philosophers publishing on the topic is relatively extensive. I do not distinguish between disciplinary differences in my analysis, so I will draw upon works of philosophers and historians indiscriminately.

My paper participates in the turn to anthropology within Kant-research, but I differ from the project in one crucial aspect. Consider this statement, made by Karl Ameriks, regarding the unity of Kantian philosophy. “[R]especting the unity of Kant’s thought is not only compatible with but even requires distinguishing the teachings that are central to it from those that are peripheral, and separating the conclusions that actually follow from his principles from the conclusions he may have drawn but do not follow. Such respect is utterly incompatible with treating a philosopher’s thought as a monolith, or using Kant’s deplorable views about race and gender as some sort of hidden key to the ‘real meaning’ of his principle that all beings are possessed of equal dignity.”\textsuperscript{43} Needless to say, I do not endorse Ameriks wish to ‘save’ Kant from himself, an all pervasive impulse nowadays it seems. I, on the contrary, believe that research on Kant’s view on race and gender must be intensified and that gender studies have a lot to profit from in doing so.

As the name signifying the apex of Western philosophy’s dream of a pure reason uncontaminated by feminine particularity, Kant has been an obvious target for the feminist “re-thinking of the canon”.\textsuperscript{44} In Kant’s case, however, that research has more or less stagnated. Nothing more, it seems, remains to be said. This is where epigenesis enters the


\textsuperscript{44} See May Schott’s anthology on feminist readings of Kant: “Feminist Interpretations of Immanuel Kant” in \textit{Re-reading the Canon}, Penn State Press (Pennsylvania, 1997).
picture. As a theory of immanent productivity, epigenesis fits perfectly within the discourse of republicanism and self-governance dominating political thought during the late eighteenth century. Yet there is only one work taking the theory seriously as a mediation of ideological interests: *Self-Generation: Biology, Philosophy, and Literature around 1800* (1997) by the previously mentioned Sievers-Müller. The historians of science prolific for their gender analysis of eighteenth century naturalism – Jordanova, Schiebinger, Dorinda Outram, Laqueur – seldom mention epigenesis. But if they do, it is always as if the theory was marginal and never as if it held any importance beyond being a mere curiosity in early modern embryology. Sievers-Müller’s works has because of this been tremendously influential too my endeavour. But I differ from his project in one regard. Whereas he only examines epigenesis’ relation to the emergence of sex difference in the work of German publicists during the closing decades of the eighteenth century, I add the notion of manliness to the equation.

Kant’s use of manliness is a truly blank spot in today’s research. Mosse’s analysis does hone in on the concept in the writings of Kant’s student, Johann Gottfried Herder (1744-1803), but he never mentions Kant himself. Likewise, Jens Ljunggren has studied the connection between Kant, Bildung and manliness both in his dissertation on Swedish Ling gymnastics, *Kroppens bildning: Linggymnastikens manlighetsprojekt 1790-1914* (1999), and in his follow up to that work, *Känslornas krig: Första världskriget och den tyska bildningselitens androgyna manlighet* (2004). Like Mosse’s, Ljunggren’s work never approaches Kant directly. This paper is partly written to amend this because manliness in eighteenth century Germany, I argue, is far more complex a concept than both Mosse and Ljunggren seems to be aware of. The connection between manliness, epigenesis and critical philosophy should hereby be considered established and in urgent need of attention.

**Method and Material**

To trace and map Kant’s thoughts on epigenesis is a frustrating and often an utterly micrological endeavour. A scholar of epigenesis compares a word or a sentence Kant might have said during a lecture in metaphysics or physical geography written down by a student who may have been listening attentively (but he may also have fundamentally misunderstood everything, or even half-slept), puts it beside an officially unpublished *private* note he scribbled down hastily when writing an actual paper, or book some ten or twenty years later. He or she prowls the fringes of Kantiania, acts as an archeologist excavating innuendoes and fragments. Philologically speaking, a study on Kant’s work on gender, generation and organic
life may therefore disconcert. Kant was highly productive and amassed large quantities of papers and essays, books, and various notes and letters. Of these, only a few deals exclusively with the questions laboured with here. The rest of his work on the matter is scattered throughout the entirety of his back-catalog. These are often but short paragraphs inserted seemingly haphazardly in between what, for a modern reader, may seem opaque out of context.

From a methodological standpoint, three consequences follow from the situation described above. First, I will not restrict myself to a particular set of works, but attempt a thematic selection of passages encompassing Kant’s entire corpus. My principle of selection is crude. Every mention of epigenesis, sex differentiation, astonishment, organized beings, and hybridity has been, I believe, taken note of. Kant’s work is in a sense highly repetitive, so the occasions when my key words surfaces – which is often – often convey basically the same information conveyed in many other places. Secondly, I argue for the continuity thesis now in vogue claiming that Kant’s career can not, or at least only problematically, be divided into distinct phases with different aims and purposes. Finally, I will use unpublished material – personal letters, lecture transcriptions, private notes et cetera – in conjunction with, by Kant, published and officially sanctioned papers, books, treatises. The first and second items of the list go hand in hand with each other, so I comment on them together.

My selection assembles its material from very different sources. The obvious starting point for any contextualization of Kant’s relation to the life sciences is Kritik der Urteilskraft (1790), the third installment of the critical project in which Kant deals extensively with ‘biological’ questions. The third Critique has been the point of entry for most studies on Kant and the life sciences since his own time. It will have some importance for my purpose as well, but I have mostly used the three papers on “the natural history of man” preceding its publication: Von der verschiedenen Racen der Menschen (1775), Bestimmung des Begriffs einer Menschenrace (1785), and Über der Gebrauch teleologischer Principien in der Philosophie (1788). Besides these, a study of epigenesis will necessarily have to dive into the vast uncharted waters of Kant’s personal notes and lecture transcripts. Although they are fragmentary, disorderly, and possibly even incorrect, it is conventional to use these in research today. The transcripts are collected from the lectures on logic, metaphysics, and physical geography. Other kinds of notes I will use are various “Nachlaß”, “Reflexionen”, and “Bemerkungen” Kant wrote in conjunction with various works. In some cases, I will quote personal letters as well.
Regarding the continuity thesis, I am not unorthodox. Some historians, however, have specifically argued that Kant’s thoughts on epigenesis underwent radical changes sometime during the 1780s. This is John H. Zammito’s claim. I do not concur with the argument, but side with Susan Shell Meld’s notion that “[a]ttention to [Kant’s view on animal generation] reveals an intellectual career more unified in its fundamental concerns than has generally been recognized.”45 I do therefore not acknowledge divisions such as Kant of the ‘silent decade’; critical or pre-critical Kant; the “senile”46 Kant of the *Opus Postumum* (1804) and so on and so forth. My approach does not, however, argue that the different texts examined can be read as if they were synchronous with each other. I do argue though that if no discontinuity emerges in the analysis, it would be ill-conceived to impose such boundaries by our own mandate.

**Hybrid Indications**

This section initiates the interrogation of the first claim outlined in “Problems and Disposition”. Epigenesis travels along routes familiar yet strangely foreign. The unconventional approach of Kant’s could be so indecipherable that historians examining it today tend to disqualify it from being a form of epigenesis at all. The problem is partly due to the earlier mentioned unwillingness of Kant-scholars to deal with the theory’s instability. John H. Zammito, for example, argues that Kant’s hesitancy towards the concept – his claim, included in the passage quoted before, that epigenesis can only be “assumed” – should be read not only as a rejection of epigenesis, but also as an endorsement of the theory’s discursive other, preformation. In this section, I turn the argument on its head. By departing from the two clauses highlighted in the introductory section, “as indicated by the mating of related kinds” and the trope of “productive causes”, I examine the implicit assumptions governing Kant’s epigenesis. Contrary to the dominant view held by Kant-scholars, I argue that Kant did subscribe to epigenesis, not despite of his hesitancy, but because of it. I do this by interleaving the notion of health with my reading of hybridity and racial purposiveness, a theme crucial for


a proper assessment of epigenesis yet insufficiently examined in the field. The following reading constitutes the first out of two arguments examining the unstable weirdness of epigenesis. It serves as the point of departure for the larger project of extracting the ideology at play in the theory.

**Racial Mixing**

Kant introduced his theory of race in *Bestimmung des Begriffs einer Menschenrace*, a publication of material he lectured on during his course on physical geography held during the 1770s, and concluded the series of papers on the topic with *Über den Gebrauch teleologischer Principien in der Philosophie*. The last piece was written in response to a critique published in *Teutscher Merkur* by Georg Forster (1754-94), a natural historian who had been traveling with Captain James Cook. Forster had a traditional Linnaean view on race and accused Kant for neglecting empirical research by favoring a speculative approach. Kant answered reconciliatory, but refused to make concessions. Race was a “Naturgattung”, he argued repeating the thesis made in the earlier papers – not an artificial “Schulgattung” useful only as memory aid. To argue his case, Kant compared the typological category of race with what he called “varieties” (Varietäten).

The comparison Kant conducts in the last of the race papers lets us to broach the complexities of epigenesis. In the passage below, I extract the concept of purposiveness and then proceed by outlining an interpretation of how hybrids circulate within the discourse of epigenesis.

> With respect to the varieties, nature seems to prevent the melting together [Zusammenschmelzung] because it is contrary to its end, namely the manifoldness of characters; by contrast, as regards the differences of the races, nature seems at least to permit the melting together, although not to favour it since thereby the creature becomes fit for several climates but not to any one of them to the degree achieved by the first adaptation [erste Anartung].

Unlike the mixing of varieties, a category denoting familial heredities such as physical constitution, facial build, and hair-color, the racial Zusammenschmelzung was only

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47 Kant published his race papers in *Teutscher Merkur* as well. Forster’s paper, *Noch etwas über die Menschenrassen*, was published in two installments: the first in the October issue of 1786, and the second in the November issue later the same year.


49 The concept of Zweckmäßigheit will induce headaches in any Kant-reader. Giorgio Tonelli has found enough inconsistencies and differing uses and meanings of it to fill a whole article. See his “Von der verschiedenen Bedeutungen des Wortes ‘Zweckmäßig‘ in der *Kritik der Urteilskraft*“ in *Kant-studien* 49 (1957), p. 154-66. For our purposes, I will stick to the very strict sense of the word elaborated upon in the quoted passages.

disapproved of by nature but not actively prevented.\textsuperscript{51} Nature’s may seem less favorably inclined towards ‘the melting together’ of varieties than races. But the passiveness it displays regarding the latter is actually not on the same level as its activeness towards the former. According to Kant, the mixing of “the manifoldness of character” runs contrary to nature’s end because it homogenizes the original heterogeneity stored within “the original germs [Keime] of the human phylum”.\textsuperscript{52} Homogenization in this regard counteracts nature’s will since familial diversity is needed in order to develop humans for “infinitely different ends” (unendlich verschiedener Zwecke).\textsuperscript{53} To prove that this preventative action “lie[s] in nature itself, which does not want the old forms to always be reproduced all over” Kant cites “the wide spread” feeling of “abhorrence (Abscheu) against mixings of people that are too closely related”, an abhorrence, he claims, that has spread “even to primitive people (rohen Völkern)”.\textsuperscript{54} By instilling the experience of repulsion in its residents, nature could prevent humans, animals, and plants of different family sorts from extinguishing the ‘peculiarity’ (Eigentümlichkeit) specific to them.

Nature secures familial diversity by actively performing a specific act. This act, however, is in itself only of a pre-emptive character. As soon as the “abhorrence” has been stamped upon the germs determining living beings, diversity will unfold of and by itself. In this sense, nature is actually passive once finished with its work. In contrast to this, though it may be of weaker kind, nature’s disapproval of racial mixing interacts with living beings in a far more important way. Whereas varieties develop automatically for a wide range of different ends, differential pigmentation develops for no other purpose than to perform the function specific to its “germ” or “disposition” (Anlagen).\textsuperscript{55} Consequently, unlike hair-color and facial build, accidental varieties that passively may or may not be useful to living beings, race is a

\textsuperscript{51} Kant defines “Varietäten” in this way: “What belongs merely to the varieties and is thus in itself hereditary (although not persistently so), can still produce over time through marriages that always remain in the same families what I call the family sort (Familienzahl), in which something characteristic finally takes root so deeply in the generative power that it approximates a strain and perpetuates itself like the latter (Kant, \textit{Von der verschiedenen Racen der Menschen}, p. AA:II:431).” In the passage following the one above, Kant demonstrates the “Familienzahl” with an example: “Reportedly [the hereditation of “family sorts”] was noticeable in the old Venetian nobility, especially in the ladies. At least the noble women on the newly discovered island of Tahiti have an altogether larger build than the common ones.” Varieties should, in other words, be read as weaker forms of heredity that reproduces physical resemblances within families, though not unfailingly so.

\textsuperscript{52} Kant, \textit{Über den Gebrauch teleologischer Principien in der Philosophie}, p. AA:VIII:166.

\textsuperscript{53} Ibid., p. AA:VIII:166.

\textsuperscript{54} The quotations used in this passage is edited from a sentence in \textit{Über den Gebrauch teleologischer Principien in der Philosophie}, p. AA:VIII:167.

\textsuperscript{55} Kant distinguishes between germs (Keime) and dispositions (Anlagen) in the following way: “The grounds of a determinate unfolding which are lying in the nature of an organic body (plant or animal) are called germs, if this unfolding concerns particular parts; if, however, it concerns only the size or the relation of the parts to one another, then I call them natural dispositions (natürliche Anlagen) (Kant, \textit{Von der verschiedenen Racen der Menschen}, p. AA:II:434).”
characteristic stored *actively* in the embryonic “imprint” (Gepräge) of the human phylum by way of a purposively directed “foresight” (Vorsorge).\(^{56}\) For, Kant claims,

> the human being was destined for all climates and for every soil, and, consequently, various germs and natural predispositions had to lie ready in him to be on occasion either unfolded or restrained, so that he would become suited to his place in the world and over the course of the generations would appear to be as it were native to and made for that place.\(^{57}\)

By being “destined for all climates and for every soil”, human beings could not have migrated across the world to fulfill their purpose if their skin did not somehow enable them to do so. Nature had therefore, by way of a Bildungstrieb, effectuated a purposive activation or restraining of germs and dispositions causing the “organization of skin” to adapt so as to cope with whatever the climatic conditions were at this or that specific location.\(^{58}\) Nature’s “self-help” texturized the skin, or “the organ of /…/secretion”, to make it fit its habitual environment by activating the particular organization needed for it to function in a way “least needy of art”.\(^{59}\) In dry climates, for example, “the olive-yellow color of the skin of the Indian /…/ points to a continuous secretion of bile which has entered into the blood, whose soapy nature dissolves and makes it evaporate the thickened fluids and thereby cools the blood at least at the outer parts.”\(^{60}\) By emitting bile, the skin of “Indians” could in this way "remove /…/ what irritates the circulation of blood” and thereby balance its warmth so as to “make them capable of tolerating the heat of the climate without detriment”,\(^{61}\) a chain of causation Kant proves by referring to “the cold hands” of those living in such a climate.\(^{62}\)

**Preformation and Hybridity**

As a being whose germinal development fits him “for several climates but not to any one of them to the degree achieved by the first adaptation”, the hybrid plays a peculiar role in Kant’s speech-act on epigenesis. With a skin coloration not quite neither of the intended, he\(^{63}\) transgresses nature’s purposively delineated borders and roams homelessly between climates.

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\(^{56}\) Kant refers to Nature’s “Gepräge” when arguing that the pigmentation of “Gypsies” (Zigeunern) is not a mere Varietäten in *Über den Gebrauch teleologischer Principien in der Philosophie*, p. AA:VIII:172. I will return to the question of how Kant hierarchizes the different races in subsequent chapters. The trope of “Vorsorge” is used in *Bestimmung des Begriffs einer Menschenrace*, p. AA:VIII:93.


\(^{58}\) Ibid., p. AA:II:435.

\(^{59}\) Ibid., p. AA:VIII:94.

\(^{60}\) Kant, *Von der verschiedenen Racen der Menschen*, p. AA:II:435.

\(^{61}\) Ibid., p. AA:II:435. For the proof of “cold hands”, see also *Über den Gebrauch teleologischer Principien in der Philosophie*, p. AA:VIII:175.

\(^{62}\) Although Kant speaks of female hybrids, he always uses a masculine pronoun when referring to them in general. I retain this empirical distinction in the analysis.
and soils. “[S]ubject[ed] to a foreign intrusion”, ‘unfavoured’ and “degenerated”, he
unspecifically fits everywhere but nowhere in particular.64

Construed as irrational, the racially mixed body defied normal physiological standards. It
failed to develop purposively, confused natural demarcations, and derailed nature’s attempt to
promote human progress. Considered that way, Kant’s interest in hybrids seems somewhat
strange. Why did he invest so much energy in bodies he obviously did not think very highly
of? The fascination with racial ambiguity is complex. On the one hand, as a product of a
European natural philosopher writing in the eighteenth-century, Kant’s work on hybrids is
deeply steeped in the colonial experience of its time. Being in between races, the hybrids
provoked anxiety and a sense of threat. They were, as Renato G. Mazzolini has noted, “fakes,
troublemakers, biological frauds, and ambivalent creatures torn between different cultures and
loyalties”.65 But the reaction can not be explained as an Europeanist response to colonialism’s
territorial expansion alone. As shown by Robin May Schott, the worry caused by the impure,
mixed, and indistinct ran deep.66

The threat to nominal rigidity posed by the racially blurred body dramatized in no
insignificant way the obsession of Kantianism par excellence: the frenzy for keeping things in
their right place. “It is not an improvement but a deformation of the sciences when their
boundaries are allowed to run over into one another”, Kant asserts in Kritik der reinen Vernunft.67 As a stand-in for nature’s correcting Vorsorge, critical philosophy’s purpose was
to serve as an antidote to the unsolicited blend, to measure and demarcate like a “geography”
of human reason that “travelled through the land of pure understanding, and carefully
inspected each part of it”.68 By “survey[ing], and determin[ing] the place for each thing in it”,
Kant’s critique corrected an otherwise unpurposive mix of the different territorial jurisdictions
of cognition.69 When faced with the “unhealthy” blur characteristic of the traditional
topography of metaphysics, the cognitive geography worked as “a sober critique, which, as a

64 Kant, Von der verschiedenen Rassen der Menschen, p. AA:II:431.
65 Renato G. Mazzolini, “Las Castas: Interracial Crossing and Social Structure, 1770-1835” in Heredity
Produced: At the Crossroads of Biology, Politics, and Culture, 1500-1870, p. 355.
66 May Schott thematizes, in Cognition and Eros: A Critique of the Kantian Paradigm (1988), precisely the kind
of threat I am working with here. “Knowledge that is pure, in [Kant’s] view, is free of all sensible or empirical
content and provides the necessary condition for the possibility of knowledge at all. Kant’s emphasis on the
purity of knowledge and or reason occurs with alarming frequency and raises the question of what is implied
with his insistence on purity. From what must reason be purified? What pollution in the sensible, empirical world
threatens the project of establishing a foundation for philosophical truth? (p. 3).”
67 Kant, Kritik der reinen Vernunft, p. AA:Bviii.
68 Ibid., p. AA:A235/B294. Kant likened critical philosophy with geography in various places during the writing
of the three critiques. See, for example, the characterization of David Hume as a “geographer of human reason”
in the first critique, p. AA:A761/B789.
true cathartic, happily purg[ing] such delusions along with the punditry [Vielwisserei] attendant to them."  

In much the same way, it was as paramount to keep races separated as "[i]t is of the outmost importance to isolate cognitions that differ from one another in their species and origin, and carefully to avoid mixing them together with others with which they are usually connected in their use."  

But, on the other hand, although Kant’s theory of race expels ‘mulattoes’, ‘mestizos’, and ‘black Caribbeans’ from the privileges of distinct pigmentation, it does not seek to restrict their breeding. In the passage below Kant conducts an “experiment” he calls “the test of half-breed generation” (Versuch der halbschlächtigen Zeugung).

The white man with the Negro woman and vice versa produce the mulatto, with the Indian woman the yellow mestizo and with the American the red mestizo; the American with the Negro the black Caribbean, and vice versa. (The mixing of the Indian with the Negro has not yet been attempted.) /…/ The white father impresses on it the character of his class and the black mother that of hers. Thus an intermediary sort or bastard [Mittelschlag oder Bastard] must arise each time, which hybrid [Blendlingsart] kind will gradually become extinct within more or fewer generations [Zeugungen] occurring within one and the same class.  

The (textual) experiment carried out above attempts to “test” the rule called “generatio homonyma”, the Aristotelian notion of hereditation according to which, in Kant’s words, a product “is in its organization itself homogenous with that which has generated it”. Experiments like this had, as noted by historians Staffan Müller-Wille and Hans-Jörg Rheinberger, become immensely popular among naturalists during the late eighteenth century. The question governing the logic of “the test of half-breed generation” asked which “mix” of racially distinct people produced this or that “intermediary sort”. The presupposition

70 Ibid., p. AA:A486/B514. Kant’s entire corpus is wrought with references to health and unhealth regarding critical philosophy beneficiary effect on human reason. The rather extensive use Kant makes of the concepts is worth highlighting because no actual study exists thematizing it. For my purpose, I lean on Ludmila Jordanova’s study on health, Nature Displayed: Gender, Science and Medicine 1760-1820, as a physiological/ideological ideal during the late eighteenth century in my assessment of it and how to read it in critical philosophy. “[H]ealth”, she writes, “was at the same time a central metaphor for social reform, and, as a matter of immediate importance to all, a significant element in debates that went far beyond the medical strictly speaking. Thus health, an ideal, was also a particular kind of icon in the period. By that token, it was a cultural commodity, traded far beyond the confines of medicine. Its aura derived from its strong associations with nature – health was the natural, that is the normal and desirable state of affairs, and was to be achieved through an understanding of nature and an ability to follow her precepts (p. 16).”

71 Kant, Kritik der reinen Vernunft, p. AA:A841/B869.


73 Kant, Kritik der Urteilskraft, p. AA:VII:419.


75 The authors call the explosion of interest directed at research on hereditation a “formation of an epistemic space”. The trope of homogenous hereditation had, they claim, an enormous impact on all fields not just in science, but in art, law, and politics as well. The sentence is quoted from their paper, “Heredity–The Formation of an Epistemic Space”, in Staffan Müller-Wille and Hans-Jörg Rheinberger (eds.) Heredity Produced: At the Crossroads of Biology, Politics, and Culture, 1500-1870, The MIT Press (Cambridge & London, 2007), p. 3.
making the deduction possible assumed that both parents ‘impress’ their character on the offspring. Thus any alternation of the parental stock will show the logic underlying race insofar as the mix will change depending upon who mates with whom.

Kant’s test was carried out in the name of science. But it bears notice that the desire to interrogate nature, however scientifically motivated, ran contrary to nature’s, or even philosophy’s, own aims: to keep the races/cognitions apart. The brisk mating ritual Kant enacts when frantically spawning his border violations may stigmatize hybrids as unhealthy; but it is not an attempt to control their proliferation. If anything, it hurries it on, laments its incompletion (“The mixing of the Indian with the Negro has not yet been attempted”), and even provokes it into further transgressions. Paradoxically, it seems, Kant’s perverse race’s economy of exchange seems to produce the very same thing it condemns.

Science spawns inbred ‘mistakes’ though nature’s Vorsorge seeks to help humans fulfill their destiny. But unhealthy unpurposiveness is not always purposeless. The passage below contains an account of the ‘mature’ view on preformation Kant held when writing the third critique, Kritik der Urteilskraft. His argument proceeds by introducing the theory, interchangeably called “the theory of evolution” 76, only to demolish it a couple of sentences later.

The champions of the theory of evolution [Die Verfechter der Evolutionstheorie], which removed every individual from the formative power of nature [von der bildenden Kraft der Natur] in order to allow it to come immediately from the hand of the creator /…/ declared themselves for preformation, as if it made no difference whether they would have these forms arise, supernaturally, at the origin or during the course of the world. To be sure, they /…/ held fast to their hyperphysics, finding even in miscarriages [Mißgeburten] (which one cannot possibly hold to be ends of nature) a marvelous purposiveness /…/. But they had absolutely no way of fitting the generation of hybrids [der Bastarte] into the system of preformation [my italics].77

The attack on “[t]he champions of the theory of evolution” waged above employs two kinds of physiological proofs: the hybrid and the miscarriage. The strategy was new neither to Kant nor to any of his epigeneticist predecessors. In historical research conducted on the debate between the preformationist camp and its critics, it is a common-place that various forms of physiological deviancies played an important role in the decline of religious “hyperphysics”.78

76 Evolution during the eighteenth century is worlds apart from evolution post-Darwin. In the former instance, the name refers to the evolutio of body parts, that is, their growth, and does not in any way resemble the notions of progress associated with the latter. See François Jacob’s account in The Logic of Life: A History of Heredity, trans. Betty E. Spillman, Princeton University Press (New Jersey, 1993), p. 129.


The technical reason why hybrids had such impact is fairly straightforward. According to the doctrine of evolution the birth of new life meant that, as historian Elizabeth Gasking notes, “the gradual appearance and apparent creation of the parts observed, as the ovum turned into the embryo and then into the adult, were simply due to an increase of, in size and in hardness, of parts the were already present.” Proponents of the theory defended a thesis claiming that the process of embryological growth involved no actual change in the parts constituent of the living body. These had been formed at the hour of Creation, and, as to the process of maturation, they did not actually undergo any differentiation. Extremities simply grew into the size God had designated to them.

Insofar as the epigenetic understanding of hybridity implied a form embryological malformation, hyperphysics had obvious problems in coping with the concept. Hybrids were epigenetic constructs that did not have any meaning outside of the conceptual framework making them possible. They presupposed a certain view of nature and race that required the scientists to infer and deduce a specific set of principles when ‘observing’ and ‘experimenting’. Preformationists did neither. According to the primary targets for Kant’s aggressions, Albrecht von Haller (1708-1777), the famous physiologist at Göttingen, and Charles Bonnet (1720-1793), the Swiss naturalist and microscopist, the thing Kant calls “race” did not even exist, at least not in the sense established by the trope of “mating of related kinds”. Because hybrid physiology only made sense if preformation already had been rejected, preformationists “had absolutely no way of fitting the generation of hybrids” into their “system” simply because, for them, hybrids did not exist.

By breeding failures in his tests and experiments, Kant could infiltrate his opponent’s nature, implant his deviancies and let them wreak havoc. In a nature where God controlled life, the effect was nothing short of disastrous. How did a world full of purposeless creatures roaming unacceptably unbounded to geographical restrictions fit with the idea of God as the creator of all life? Or with miscarriages, “monsters”, the high level of degeneracy plaguing, according to Kant, not an insignificant part of mankind? The answer was: it didn’t. Not even Leibnizian optimism could account for the onslaught of purposelessness that flowed from

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epigenetic “tests” like Kant’s around Europe. The mistakes found in nature simply did not match with the traditional notion of God then dominant.

**Apodictic and Hypothetical Uses of Reason**

Kant’s use of the hybrid proof was to an extent conventional. But it hides a quirk. Historians of science traditionally read the hybrid’s role in the debate between preformationism and epigenesis as if it is common-sensically clear what such a physiology might have entailed. In Kant’s case, however, the hybrid physiology does not prove preformation wrong because racially mixed pigmentation as such could not be accommodated for within the theory’s conceptual domain. Hybrids prove epigenesis correct because an unpurposive racial mixing presupposes an epigenetically generated body susceptible to developmental failure, or unhealth. The assumption making this deduction possible attains its proving force not because a ‘discovery’ had been made making preformationism irrevocably unusable. The example of hybrid physiology could prove Kant’s thesis because it relied upon a theory arguing for immanent “productive causes”, the third clause of Kant’s speech-act, a presupposition necessarily colliding with any idea dependent upon externalist hyperphysics. Kant calls logical assertions that only prove what the proof already presupposes a “Circulus in probando”, that is, an “error one commits /…/ if one lays at the basis of its own proof the very presupposition that one wanted to prove”. This is the paradigmatic case.

The circularity employed in the proof of epigenesis points to the problem I highlighted earlier regarding Kant’s view on animal generation. Kant argues that the theory of epigenesis can only be ‘assumed’ to be a correct description of how nature operates and that naturalists should come to this conclusion because “the mating of related kinds” seems to indicate it. How should the significance of Kant’s peculiar way of reasoning be assessed here?

In the beginning of this section, I highlighted that researchers on critical philosophy and the life sciences argue that Kant never fully committed himself to epigenesis. In his article, illustratively titled “Kant’s Persistent Ambivalence Toward Epigenesis, 1764–90” (2007),

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81 Preformationists could and did account for physiological deviancies though, despite (or because of) their theologically grounded naturalism. The theory enabling this derived its philosophical underpinnings from Wilhelm Gottfried von Leibniz’ (1646-1716) optimism and Albrecht von Haller’s idea of original monstrosity. The recourse to God in debates concerning deviancies did not gain much support after the epigenetic turn during the later half of the eighteenth century. I will not venture into the specifics regarding monstrosity and optimism here. Instead, see Marie-Hélène Huet’s excellent *Monstrous Imagination* (1993), p. 62-67. For France, see also Jacques Roger’s *Les sciences de la vie dans la pensée française du XVIII siècle*, p. 402-12.

John H. Zammito claims that the common usage of the theory during the late eighteenth century was far too radical for Kant.

There were, for [Kant], only two theoretical possibilities for the generation of bodies..., namely, preformation (the educt-theory) and epigenesis (the product-theory), Kant presented epigenesis in both sets of notes as a hypothetical, not assertoric argument: if we have grounds for assuming the epigenesis theory, then... Clearly, Kant was not committed himself to the hypothesis; he was not saying ‘since we have grounds’. Indeed, if we are attentive to both passages, what emerges is that Kant in fact rejected this hypothesis, and therefore rejected epigenesis/.../.

Zammito bases his argument on a simple principle. Kant’s qualm in choosing between preformation of epigenesis was settled because he did not believe the latter theory to be assertorically provable. The claim is far from self-evident, and should raise an obvious question: is that, within the discourse of Kantian philosophy, really a viable reason for disqualifying a thesis? The view on epigenesis as just a hypothesis can be read in two ways. On the one hand: Yes; Kant did reject the theory on these grounds. This would explain why he, when reviewing Comte de Buffon’s and Maupertuis’ take on epigenetic concepts in the early Der einzig mögliche Beweisgrund zu einer Demonstration des Daseins Gottes, claims this.

The inner forms [Die innerliche Formen] of Herrn von Buffon and the elements of organic matter, which in the opinion of Herrn von Maupertuis arrange themselves in consequence of their memories and according to the laws of desire and aversion [den Gesetzen der Begierden und des Abscheues], are either as incomprehensible as the thing in itself or completely arbitrary.

The passage confirms Zammito’s claim that Kant did not think very highly of the provability of epigenesis. The theories on offer here claimed things that no one could possibly know, and the attempt to prove these would produce concepts as “incomprehensible as the thing itself”.

On the other hand, however: No; Kant did not reject the theory of epigenesis. He in fact embraced, not despite it being just a hypothesis, but because of its indeterminate character. Consider the following distinction Kant makes later on in Kritik der reinen Vernunft regarding the “apodictic” and “problematical” use of reason.

If reason is the faculty of deriving the particular from the universal then: Either the universal is in itself certain and given, and only judgment, is required for subsuming, and the particular is necessarily determined through it. This I call the ‘apodictic’ use of reason. Or the universal is assumed only problematically, and it is a mere idea, the particular being certain while the universality of the rule for this consequent is still a problem; then several particular cases, which are all certain, are tested by the rule, to see if they flow from if, and in the case in which it seems that all the particular cases cited follow


84 Kant, Der einzig mögliche Beweisgrund zu einer Demonstration des Daseins Gottes, p. AA:II:115.
from it, then the universality of the rule is inferred, including, all subsequent cases, even those that are not
given in themselves. This I will call the ‘hypothetical’ use of reason.85

If, as Susan Shell Meld argues, some continuity can be presupposed between the pre-critical
and critical phases, we now see why Kant criticizes Comte de Buffon and Maupertuis in the
earlier quote. The mistake they had made when proposing their theory on how epigenetic
generation functioned – the moule intérieur, the desire and aversion of organic matter – was
not that they subscribed to a view on nature fundamentally wrong. The error committed by
these was that they confused an apodictic use of reason with a hypothetical one. How nature
operated, Kant argues, was not “in itself certain” and to explain it in so precise and
determinate terms as the two Frenchmen did produced illegitimate judgments of universality
in cases were no such apodicity could be found. But this did not mean that their theory was
incorrect.

Kant calls the use of reason in which universal certainty is not immediately given
“hypothetical”. Is the claim, quoted in the introduction, that hybrid physiologies indicates that
epigenesis must be “assumed” an example of such a reflection? One factor points in that
direction: the notion of health. Recall how Kant structures the relation determinant between
hybrids and its parent-theory. As unhealthy mixes of purposively designed but separated
parts, hybrids thwarted nature’s intention regarding humans. Yet is only by virtue of their
failed pigmentation that preformation could be dispelled and a healthy, epigenetic state of
nature could be safely installed in its place. Consider the following passage in light of these
two moves.

The need to unravel the skein of politics by starting from the subjects’ duties rather than the citizens’
rights has recently been stressed. Likewise it is diseases which have stimulated physiology; and it is not
physiology but pathology and clinical practice which gave medicine [der Arzneywissenschaft] its start.
The reason is that as a matter of fact well-being is not felt, for it is the simple awareness of living, and
only its impediment provokes the forces of resistance. It is now wonder then that Brown begins by
classifying diseases.86

Brown’s idiosyncratic method of classifying pathology before physiology; the unraveling of
subjects’ duties before right’s, and, we might add, the moral person’s experience of
humiliation before freedom: the list of exceptions, derivations and restrictions presented
above as elsewhere in Kant have one thing in common. Canguilhem has argued apropos the
notion of abnormality life scientists used during the late eighteenth century that “[i]t is not

paradoxical to say that the abnormal, while logically second, is existentially first.”

According to the logic of normativity, the abnormal do “come after the definition of the normal” because, as Canguilhem points out, “it is its logical negation.”

But since the normal also needs the abnormal, like epigenesis needs its hybrids, the latter actually becomes “the historical anteriority /…/ which give [sic] rise to a normative intention.”

In the same way the examples given above illustrates how exceptions precedes the rule they break, hybrids, although negating epigenetic definitions of health, paradoxically antedates the theory making them possible.

Because health and orderliness can not be read in themselves, it is only when breached and compromised that the epigenetic characteristics of nature’s interior reveal itself. “[H]ealth”, Kant claims in Die Metaphysik der Sitten (1790), “is only a negative kind of well-being: it cannot itself be felt.”

This is why hybrids have such importance for Kant. Though logically second, hybrid physiology existentially precedes epigenesis despite (and because of) the fact that the concept of racial mixing presupposes an epigenetic kind of embryological malformation. This is so because, in its state of health, nature in itself could not be apodictically known. It could only be hypothetically inferred how it operated by the particular cases in which it somehow failed to carry out its intended plan. This is what happens in cases in which the “particular being certain while the universality of the rule for this consequent is still a problem”

Canguilhem’s insight shows why Zammito’s claim that Kant rejected epigenesis will not hold. Thus far we have seen that the inner wiring of nature could only be properly assessed in those instances of unhealthy embodiment subverting the providential care handed down in embryological imprints. But because of the self-reversing dislocation of cause and effect governing epigenetic testability, the image of nature displayed in and by hybrid physiology could only be grasped second-handedly, that is, hypothetically. The reason for this is that, since health and normality communicates indirectly, the naturalist only gains access to his object of study by way of ‘indications’. This is why Kant speaks so vaguely when, in various

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89 Ibid., p. 243.
90 Kant, Die Metaphysik der Sitten, p. AA:6:485.
lectures, claiming that hybrids “seems to indicate actual production” or that epigenesis “has more grounds for it”. 91

Kant’s hesitation whether bodies are preformed or produced should not be read as sign of uncertainty in any obvious way. When explaining the differences in use between an apodictic judgment and a hypothetical one Kant does not say that, because of its determinative character, the first of these is the only form of judgment science should be interested in. On the contrary: “The hypothetical use of reason”, Kant claims, “is /…/ directed at the systematic unity of the understanding’s cognitions. /…/ [T]his unity /…/ helps to find a principle for the manifold and particular uses of the understanding, thereby guiding it even in those cases that are not given and making it coherently connected.” Instead of saying, with Zammito, that Kant rejects epigenesis because of its hypothetical applicability we now see that it is precisely because of that ‘lack’ he in fact embraces it. Though epigenesis speaks of all sorts of things, events, and phenomenons it does not say anything determinately. Yet this is not the point of Kant’s epigenesis either. The purpose of epigenesis is to serve as the means understanding need for the attainment of a coherent perception of nature, even if it is only hypothetical one. This, I argue, is the proper way to understand how Kant’s use of indications operates and why his hesitancy regarding epigenesis should not, as Zammito claims, be read as a rejection of the theory.

**Epigenesis and Ideology**

The previous analysis generated two results. First, by eliciting life’s fallibility, the “mating of related kinds” indicated that nature, in itself unknowable, did not merely evolve its beings. Its non-teleological products disturbed normal developmental patterns, and, in that way, showed how the Bewunderung of life grew by way of self-sustaining (but volatile) immanent causes. In contrast to the belief held by preformationists, Kant saw nature as autonomously breeding itself. This is what Kant means when claiming that the parents were the “productive causes”. Yet as products and indications of epigenesis, hybrids circled around themselves in groundless self-referentiality. In a concluding part, I showed that hybrids only prove

91 “If one assume the system of involution,” Kant deduces in a lecture on metaphysics, “then one thereby declares great precaution as completely useless. A pig, e.g., that eats an acorn destroys thereby a million trees that were placed in it. Also speaking against that are hybrids and bastard plants which seems to indicate actual production, not mere evolution (Metaphysik K, p. AA:28:760).”
epigenesis because their physiology presupposes the theory’s claim that nature may fail in its purposive Vorsorge. I also showed that this move was necessitated, since nature’s providence must fail in order to cognizable, by the epistemological commitments underlying Kant’s philosophy. Epigenetic generation could only be known hypothetically because nature’s interiority could not in itself be investigated.

So far I have not explicitly broached any of the political implications stirring underneath the surface of Kant’s epigenesis. But, needless to say, they are there. In the following piece, I investigate how and why epigenesis relates to Kant’s Enlightenment republicanism. I turn to the two remaining phrases of the quote presented earlier: the already touched upon concept of “mixing” and the notion “similarities of variation”. Before delving into that difficult knot however, we need to look into the parallel Kant makes between pure speculative reason and animal bodies.

**The Epigenesis of Pure Speculative Reason**

Preformationists relied upon external sources of causation in their account of how living beings should be understood. It is therefore not surprising that Kant rejected the theory. For him, subscription to such dependence would be equal to a belief in miracles. And these, he claims, may be a way to account for the natural phenomenon of life, but it is not explanation of it. By leaving it to God, the theory avoided rather than dealt with the problem of living beings. [Preformation]”, Kant warned, “ought not to be that rashly admitted, for it paves the way for a philosophy of the lazy /…/ which, by appealing to a first cause, declares any further enquiry futile”.92

But scientific laziness was not the only problem with preformation. A theory reliant upon God may have been scientifically unsound, Kant argued; but the political implications traveling under its aegis provoked even more. In socio-political terms, the epigenesis-preformation conflicts grids onto the same lines of contestation pitting liberal republicanism against absolutism in late eighteenth-century politics in Europe. To keep things tidy, let’s list them as follows.

The theory of preformation clashed with Kant’s political commitments for three interconnected reasons. First, the belief that God creates life provided scientific credence to the l’ancien regime’s absolutist notion that order should be imposed externally. Secondly, a pre-ordained order fixating every living being meant that one’s social position was static and

irrevocably determined at the hour of Creation. Third, as preformed and predetermined, any living being would be precluded from the republican ideal of self-realization according to which one’s worth hinged upon what, as Kant puts it, “one make of oneself”.93

These three aspects were all present in Haller’s and Bonnet’s theory of evolution. Bonnet, for instance, popularized the notion of a great chain of being, a “groundless dream” according to Kant94, arguing that all organic and inorganic beings were ordered in absolute linearity starting from the crudest of matter stretching to the highest form of life: Man. The *lex continui*, as Kant called the term, argued for a static and immovable order of things, a hierarchy fixating life along one great “chain of nature” (Naturkette).95 Historian Clara Pinto-Correia briskly defines the doctrine, in *The Ovary of Eve: Egg and Sperm and Preformation* (1997) as “[a] ‘politically correct’ antidemocratic doctrine, implicitly legitimizing the dynastic system” that “[o]ffered convenient religious and social backing for the status quo.”96 The definition may be too harshly put. But it does capture the grist of preformation, at least of how it was perceived by its adversaries.

Like the self-generating nature, Kant’s model society did not resort to external sources for political legitimacy. In his famous *Beantwortung der Frage: Was ist Aufklärung?* (1784), he wrote that

93 This is Kant’s definition of a “free-acting being” or what it means to have “character”. See *Anthropologie in der pragmatischer Hinsicht*, p. AA:VII:119, 285.


95 Compare, however, Kant’s ambiguous description of this notion in *Über der Gebrauch teleologischer Principien in der Philosophie*: the “[Naturkette] may not make the investigator of nature recoil as though before a monster /…/ (for it is a play with which they may have entertained themselves at one time or another, but which they soon gave up since nothing is gained by it) (p. AA:VIII:179).” In footnote later on, Kant cites Johann Friedrich Blumenbach’s (1752-1840) harsh critique of the idea: “Concerning this idea, which became very popular especially through Bonnet, Herr Hofr. Blumenbach’s reminder [in *Handbuch der Naturgeschichte* (1779), “Preface”, §7] deserves to be read.”

96 Clara Pinto-Correia, *The Ovary of Eve: Egg and Sperm and Preformation* (1997), p. 4. Ludmila Jordnova makes a similar point apropos inheritance in “Interrogating the Concept of Reproduction in the Eighteenth Century” in Faye D. Ginsburg & Rayna Rapp *Conceiving the New World Order: The Global Politics of Reproduction*, University of California Press (Berkeley, Los Angeles & London, 1995): At this particular moment in the history of political theory two different approaches existed: one, usually labeled patriarchalist, was in decline. While the other, often called liberal or contractualist, was in its early stages. The first approach rested on a strict and static analogy between kings and fathers, whose original authority came from God through Adam. The second rested on an explicit critique of patriarchalism and tried to give a naturalistic account of the passage to society from a state of nature. Hence it perforce had to address the likeness between the family and the state, and the relationship between begetters and begotten. For liberal theorists the claim that begetting conferred rights was problematical rather than taken for granted. /…/ The link with reproduction is clear. Inheritance lay at the heart of the political order. For patriarchalists inheritance mattered because the right to rule was transmitted from father to son. For liberals it was the mechanism through which property was transferred, and property was the basis of political rights. The kind of material continuity that existed between generations was thus a matter of some importance. The theory that all human beings already existed, preformed, in Eve’s ovaries, suited a patriarchalist view (p. 374-5)."
Enlightenment is the human being’s emergence from his self-incurred immaturity [Unmündigkeit]. Immaturity is inability to make use of one’s own understanding without direction from another. This immaturity is self-incurred when its cause lies not in lack of understanding but in lack of resolution and courage to use it without direction from another. Sapere aude! Have courage to make use of your own understanding! is thus the motto of enlightenment.\(^{97}\)

Enlightenment, according to Kant, equals the human being’s horatian rise to mature, autonomous self-causation. The ideal could also be phrased in physiological terms. “The \textit{principium} of morals”, Kant asserts, “is autocracy of freedom with regard to all happiness or the \textit{epigenesis} of happiness [my italics] in accordance with universal laws of freedom.”\(^{98}\) Because epigenesis, unlike preformation, stressed the principle of self-determination, the theory could effortlessly be translated into a moral discourse. The harmonization between morality and physiology was especially productive because epigenetic self-governmentability underlined the key feature of political life in republicanism: it was not given to you. Kant continues: “Happiness has no self-sufficient worth insofar as it is a gift of nature or of luck. Its origin from freedom is what constitutes its self-sufficiency and harmony. Thus good conduct, i.e. the use of freedom in accordance with those laws in which happiness is the \textit{self-creation} [my italics] of the good or rule-governed power of choice, has no absolute constancy, and worthiness to be happy is the correspondence.”\(^{99}\)

But did epigenesis, a physiological concept, merely illustrate certain principles of morality? Or did these two modalities of Kantian autonomy share a common ground, an intertwined sphere in which ideology and physiology would be inseparable or, as it were, interchangeable? The question has attracted the attention of some Kant-scholars in recent years. “An examination of Kant’s assessment of this biological debate might contribute to the understanding of his epistemological views, by making the terms of the analogy more accessible”, philosopher Marcel Quarfood writes. “But it also opens some intriguing questions about the nature of the parallel drawn between philosophy and biology. Does Kant use biological terms purely metaphorically or analogically, with the sole purpose of illustrating his epistemological tenets, or is there a deeper connection between epigenesis with regard to the categories and epigenesis as a theory of generation?”\(^{100}\) Quarfood refers in the last sentence to the passage in \textit{Kritik der reinen Vernunft} in which Kant explains the necessity of

\(^{97}\) Kant, \textit{Beantwortung der Frage: Was ist Aufklärung?}, p. AA:VIII:35.


\(^{100}\) Marcel Quarfood, \textit{Trancendental Idealism and the Organism Essays on Kant}, Almqvist & Wiksell International (Stockholm, 2006), p. 78.
the categories by referring to the “epigenesis of pure speculative reason”. Because a preformed installation of the categories, he argues, would render the harmonization between cognition and cognized object **subjective**, the philosopher must suppose the necessary systematicity characterizing human understanding to be epigenetically developed from “the germs and dispositions” stored in humans. This, he thought, was the only way to explain the objective correlation between appearances and cognition since an epigenetic “[s]elf-delivery [Selbstgebärung] of our understanding (including reason), without impregnation by experience” would be the only way to properly secure the necessary harmony underlying the founding move of aesthetics in critical philosophy.

The question of physiology’s conflation with philosophy has split Kant-scholars into two camps. Together with Quarfood, Hans Ingensiep and Helmut Zöller has claimed that the use of epigenesis in ‘non-physiological’ contexts should not be read literally. Ingensiep goes farthest and claims that epigenesis was only an “intuitive illustration” (anschaulichen Verdeutlichen) of how human reason operated. On the other side, Philip Sloan, a historian of science, has argued that “the epigenesis of pure speculative reason” do refer to the categories as “biological properties”. According to him, the fact that Kant uses “germs and

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101 Kant offers three alternatives on how the “necessary agreement of the experience with the concepts of its objects can be thought”. The first is “a kind of preformation-system of pure reason.” Conceptualized this way, the categories would be “subjective predispositions for thinking, implanted in us along with our existence by our author in such a way that their use would agree exactly with the laws of nature”. The problem with this idea, however, is that “the categories would lack the necessity that is essential to their concept” since the “the concept of cause, which asserts the necessity of a consequent under a presupposed condition would be false if it rested only on subjective necessity, arbitrarily implanted in us.” The other two ways of thinking the relation between concept and object are a “system of epigenesis of pure reason” and “a sort of generation aequivoca”. The second alternative, Kant argues, is false since it would entail that “experience /…/ makes [the] concepts possible” which contradicts their a priori status as “independent of experience”. The first, Kant concludes, is therefore correct. The a priori status of the categories is epigenetically generated because they “contain the grounds of the possibility of all experience in general from the side of the understanding” and are, unlike preformationist subjectivism, independent of external sources of causation. See Kant, *Kritik der reinen Vernunft*, p. AA:B166-69.


104 Philip Sloan, “Preforming the Categories: Eighteenth-Century Generation Theory and the Biological Roots of Kant’s *A Priori*” in *Journal of the History of Philosophy* 40, no. 2 (2002), p. 245. See also Felicitas G. Munzel who concurs with Sloan’s controversial thesis. According to her, Kant translated a ‘biological’ thesis he had developed early in his career to explain the important notion of “character” used during and after the critical phase: “By 1797, what over thirty years earlier had been conceived as a natural process of the organic body provided for in its structuring principle is now explicitly formulated as a maxim for action that we (as moral
disposition” to explain the categories, two concepts of distinctly physiological flavor, should alert us to the proximity governing the relation between biology and philosophy in the late eighteenth century.

The disagreement between Sloan and the group reading critical philosophy metaphorically testifies to a tension of meaning in the term epigenesis. But it is not altogether clear if it stems from Kant’s ambivalence towards the concept or from his interpreters presentist reading of it. Let me highlight two reasons why the latter may be the case.

In “Der transscendentalen Methodenlehre” of Kritik der reinen Vernunft Kant explains that reason works “like an animal body”. The organized being’s purposively developed body parallels the systematicity of reason because “[it] is, in respect of principles of cognition, a unity entirely separate and subsisting for itself, in which, as in an organized body, every part exists for the sake of all the others as all the others exist for its sake.” The metaphor of bodily organization elucidates how human reason and freedom is able to birth itself and thereby act as its own cause without recourse to hyperphysics. But the same is also true of the opposite.

When Kant explains how an “animal body” functions, how the principle of life making it possible steers its growth in accordance with an idea of the whole, he writes this.

>The concept of a thing as in itself a natural end is /…/ not a constitutive concept of the understanding or of reason, but it still can be a regulative concept for the reflecting power of judgment, for guiding research into objects of this kind and thinking over their highest ground…not, of course, for the sake of knowledge of nature or its original ground, but rather for the sake of the very same practical faculty of reason in us in analogy with which we consider the cause of that purposiveness.

The passage contains a lot of technical distinctions to which we will return later. For now I want to focus on the final sentence. Kant says that “we consider the cause of [natural ends]” “in analogy” with “the practical faculty of reason in us”. Later on he repeats this statement by pulling animal bodies and reason even closer to each other. We must view organized beings, he claims, through “a remote analogy with our own causality in accordance with ends.”

Kant explains epigenetically developed beings in analogy with human freedom since, like reasons self-determination, organic beings functions autonomously without any recourse to

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105 Kant, Kritik der reinen Vernunft, p. AA:833/B861.
106 Ibid., p. AA:Bxxiii.
107 Kant, Kritik der Urteilskraft, AA:V:345
hyperphysics; that is to say, in precisely the same way he explains human freedom. – So, which term is literal and which is metaphorical here? The answer, it seems, is as circular as anything in Kant: they both are.\textsuperscript{109} Organicity and reason spirals around each other acting interchangeably as analogies and hard, literal referents of metaphoricity.

The use of animal bodies and reason as ‘intuitive illustrations’ of each other raises an interpretative problem of how to read the “epigenesis of pure speculative reason”. But the incomprehensibility of the phrase may not be so much a problem in Kant. Ludmila Jordanova points out, in \textit{Nature Displayed: Gender, Science and Medicine 1760-1820}, that “the physical and the moral were at their base the same, both facets of organization” during the post-revolutionary situation in European politics and science.\textsuperscript{110} It may be that the difficulty Kant, a well-read commentator on both fields, raises for the historian’s understanding of the connection between physiology and philosophy concern the presentist assumption that ‘biology’ must signify an epistemological sphere different from philosophy. The circular sameness of these two modalities in Kant attests to the falsity of such an assumption at least.

\textbf{Sexed Embodiment}

Epigenesis could be used to explain the systematicity of pure reason, and vice versa. But to practice freedom also meant that one embodied a certain kind of physiology. This is how the bio-political anatomy enters the discourse of Kant’s epigenesis. The second way physiology and reason embraces each other is through bodily sex differentiation.

In \textit{Vitalizing Nature in the Enlightenment}, P. H. Reill reflects on the tendency common amongst historians studying the mid- and late German Enlightenment to project a differentiation between Naturwissenschaften and Geisteswissenschaften occurring later on back onto earlier thinkers. Having done so himself, he, like Jordanova, now urges historians to re-consider the often misplaced assumption: “I was forced to look more closely at the general outlines of Enlightenment thought, which led me to re-evaluate the basic relation between ‘science’ and history in the Enlightenment. I realized that Enlightenment thinkers never conceived of separating the humanities from the study of nature. For them, nature

\footnotesize{\textsuperscript{109} Clark Zumbach has argued along similar routes. For his analysis of the “elliptical” relation between reason and animal bodies, see \textit{The Transcendent Science: Kant’s Conception of Biological Methodology}, Nijhoff (Den Hagen, 1984), p. 99.}

\footnotesize{\textsuperscript{110} Ludmila Jordanova, \textit{Nature Displayed: Gender, Science and Medicine 1760-1820}, p. 93. Jordanova also argues that philosophical publicists and physiologists attempted to form “a common language for mind and body so that different levels of organic complexity could be dealt with in the same explanatory framework (p. 165).”}
served as the basic model of informing all human activities, the grand analogue upon which existence was grounded.”

The phenomenon Reill refers to is the emergence of anthropology, or ‘science of Man’, the privileged form of inquiry answering the question of human existence that now occupied Enlightenment thought.\(^{\text{111}}\) Kant participated in this, but he also had reservations regarding the scope such knowledge would be able to cover. According to him, “[a] doctrine of knowledge of the human being, systematically formulated (anthropology), can exist either in a physiological or in a pragmatic point of view. – Physiological knowledge of the human being concerns the investigation of what nature makes of the human; pragmatic, the investigation of what he as a free-acting being makes of himself, or can and should make of himself.”\(^{\text{112}}\)

Kant’s definition of anthropology as a two-fold enterprise divided between physiology and pragmatics would seem to refute Reill’s thesis. But Kant is not invoking a difference between nature and ‘spirit’ here. The difference between the two forms of anthropology refers to a difference within nature: the separating divide between determinative and a regulative orderliness. Both sides, however, take place within the discourse of epigenesis and bodily sex differentiation.

In the previous section I quoted Pinto-Correia’s thesis that preformation clashed with the ideal of republican emancipation emerging during the closing decades of the eighteenth-century. The thesis is, in a sense, correct. On a textual level, Kant does oppose himself to preformationists because their absolutist, “anti-democratic” theory implicates untenable consequences for a civil society. But historians need to be very wary when managing differences between empirical concepts and analytical ones regarding the eighteenth century. This becomes acute in Kant’s case. In an empirical sense, the problem with preformation may have been its absolutist leanings. But, analytically speaking, the problem was actually the opposite: the theory was not reactionary, but too liberal, too democratic.

Kant sees the political situation of contemporary society in light of the ever so grand antiquity ideal in political thought at the time. “In everything that pertains to beautiful or sublime sentiment, we do best if we allow ourselves to be led by the example of the ancients [die Alten]”, he musingly claims. “[I]n sculpture, architecture, poetry, and oratory, and the political constitution [Staatsverfassung]”: everything they did, they did much better and “closer to nature”. By way of contrast, “[o]ur age”, Kant exhorts, “is the Seculum of the


Beautiful trivialities, Bagatelles, or Sublime Chimera”.\(^{113}\) The longing for a return to a past free of “frivolous /…/ servile corruption” owes much to Jean-Jacques Rousseau’s immensely popular thesis about the decay of contemporary society. “The Newton of moral sciences”\(^{114}\) had led the way and Kant, once smitten by Rousseau’s pessimism, quickly become one of his most loyal, admiring reader.

Kant’s view on antiquity and contemporary society inverses the conflict between preformation and epigenesis in a way counter-intuiting the framework employed by Pinto-Correia. “[T]he Beautiful trivialities, Bagatelles, or sublime Chimera” Kant associates with “[o]ur age” was symptomatic of the cultural degeneration plaguing Enlightenment society, a hollowing out of dignity that could be traced to one unfortunate event. “[W]e must now be among women”, Kant says diagnosing how and why progress did not run as smoothly as planned. The influence of women, their feminizing effect on otherwise sound men, had transformed society into a mere charade.

The process of feminine degeneration hurling society farther away from nature could be traced to various events. But, for Kant, the more salient of these was the dubious implications of preformationist dogma. The theory had two faults. Most severe was that it denied “the seeds of the male creature” its rightful dignity, “to which they [i.e. preformationists] had attributed nothing but the mechanical property of serving as the first means of nourishment for the embryo”. But it also bestowed too much importance to women’s coital contribution. “For here”, he laments, “the mating is a mere formality where a supreme intelligent cause of the world has concluded to immediately form a fruit and only leave it to its mother its development and nourishment.” The preformationist doctrine of generation crippled Enlightenment’s liberal progress because it promoted the dual movement of feminization and emasculation. The theory systematically raised women’s’ importance and lowered males’. It is for this reason politics based on epigenetic concepts became so prevalent during this time. The theory could be used to bio-politically arrest the downfall of Enlightenment by defusing the feminizing consequences of the doctrine of preformationism.

**“Taking Both Into Account”: Mixing the Fluids**

The previous chapter dealt with how hybrids indicated for Kant that both parents impress their character on their offspring. There, however, I precluded two things: the polemic directed at

\(^{114}\) Ibid., p. AA:XX:167.
preformationism with this proof regarding sex difference and the gender political implications accompanying the notion of productive causality. It is now time to connect our earlier discussion to these questions.

Preformationism came in widely different styles with often internally incongruent epistemological and physiological implications. The non-singularity of the theory made it useful for differing social contexts for very different reasons. By the time Kant entered the debate, however, only two options were still operative with the necessary scientific credentials: ovism and spermatism. Both theories carried theological luggage; but the question everyone asked concerned something else: “Whether everything in the character of the child depends solely upon the man or the woman?”

The system of ovularum presupposes that if the woman had been with another man she still would have produced the same children; that of animalculorum, that if the man had been with another woman he still would have had the same children.

Kant’s comparison of “the system of ovularum” and “that of animalculorum” highlights two crucial aspects of the ideology implied in animal generation. In Making Sex: Body and Gender from the Greeks to Freud (1990) Thomas Laqueur’s bases his widely cited thesis about a “two sex model” on the claim that preformationists invented modern ‘sex difference’. Together with Londa Schiebinger, he has argued that the ‘discovery’ of the egg and the sperm, construed as the founding moment of modern physiology, initiated the process that would at the end of the century culminate in the ideology of sex complementarity so prevalent in republican politics at the time. Yet Kant’s account tells a different story. Jacques Roger warns historians of science, in “The Living World” (1980), to not confuse the seemingly modern vocabulary used by Haller and Bonnet with the theological context in which their work was carried out. He writes: “we may be tempted to consider [these] scientists as the first ‘modern’ experimentalists. But if we think that they accepted the fantastic theory of the ‘pre-existing germs’, we cannot help considering them as ‘archaic’ thinkers.”

115 Kant, Reflexionen zur Metaphysik: Phase K, p. AA:XVII:416. This piece is part of Kant’s preparatory notes to his lecture on anthropology. Since he taught these over a large timespan, the exact date of its writing is hard to pin down.
117 Thomas Laqueur associates the invention of biological sex “as we know it” with preformationist physiology in Making Sex: Body and Gender from the Greeks to Freud, p. 171-174.
Roger’s remark highlights the problem the doctrine of preformation poses for an historical interpretation. In an obvious way, the theorists of preformation did ‘discover’ the egg and the sperm. But, as Kant aptly shows, this fact was more likely to refute than bolster the kind of sexual complementarity so strongly associated with it. As shown in the quote above, though preformation invents modern physiology, no one defended ovism and animaculism at the same time. Simply put, it was an either/or situation.

Laqueur and Schiebinger also misplace their claim that notions of sex difference emerged as a consequence of the decline of, in the latter’s words, “ancient theories of sexuality”. In the passage above, Kant runs through the various options on offer to naturalists regarding animal generation during the late eighteenth century. But the theory he connects with sex difference is not a theory repudiating antique models of physiology. It is an antique model of physiology: epigenesis. Kant continues his assessment of theories on animal generation by adding a by now familiar theme: mixing.

[Animaculism] is very practical; for in the first case a father man [Vater Mann] has to take into account the character of the woman and her family, whereas in the second he does not need to do this, but only the woman has to take into account the family of the man. With epigenesis one has to take both into account; first, because of the alternative, second, because of the mixing.

Helmut Sievers-Müller argues that the reason why preformation did not entail an ideology of sex difference was that “[a] comprehensive philosophy of gender that might have capitalized on these physiological differences was not yet in place” during this time. “Only epigenesis,” he continues, “with its claims of total determination, is inseparably linked to what some have called the ‘classic’ philosophy of gender.” In terms of physiological anthropology, the comparison between epigenesis and preformation tied both the male and female genitor to their respective roles as productive causes in coital situations. We have earlier seen how sex difference could be proven by way of racial hybridity. The kind of epigenetic model used to ground this was the Hippocratic/Galenic “two semence” theory in vogue among German naturalists doing experiments on plant hybridization at the time.

122 Ibid., p. 29.
notion of two semen implying that both parents contribute a sex-specific material from which the offspring would thereby be generated. Thus the phenomenon of the racial mix between white and black genitors, the “mulatto”, showed the naturalist that children were not the product of just one parent.

The proof of hybridity and mixing warded off the political dangers of preformationist physiology. Since both parents were determined by their functional roles in reproductive organization, it was easy to see in what way that function could be translated into a political realm. Now transformed into mothers, women’s claim to a public voice could, as Ursula Pia Jauch has noted, be forfeited by way of reference to their wombs.124 “One can only come to the characterization of [the female] sex”, Kant argues in *Anthropologie in der pragmatischer Hinsicht*, if one uses as one’s principle not what we make our end, but what nature’s end was in establishing womankind.125

The passage connects the claim that physiological anthropology “concerns what nature makes of the human being” with the purpose reproduction endows the character of females with. This purpose does not simply assign to them a role external to their beings. Nature’s end when designing females encompasses the entirety of the female being and does not stop at a corporeal level. Consequently, women’s character, for Kant, is metonymically determined by their reproductive functionality, by their wombs. In a subsequent passage this conclusion made Kant write the following:

> When nature entrusted to woman’s womb its dearest pledge, namely the species, in the fetus by which the race is to propagate and perpetuate itself; nature was frightened so to speak about the preservation of the species and so implanted fear – namely fear of physical injury and timidity before similar dangers – in woman’s nature; through which weakness this sex rightfully demands male protection for itself.126

The passage rehearses a theme that, in the later half of the eighteenth century, had become part and parcel of the male liberalist’s repertoire of sexual politics. The alive and willing Nature had instilled fear and timidity in women, thereby rejecting their political claims by subduing them as immature and infantile. “Children are naturally immature and their parents

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124 Jauch was the first to study Kant’s sexual politics. And her work is still the best. See, *Immanuel Kant zur Geschlechtsdifferenz: Aufklärerische Vorurteilskritik und bürgerliche Geschlechtsvormundschaft*, Passagen (Vienna, 1988), p. 144-147, 156-202.


are their natural guardians”, Kant writes. “Women regardless of age is [sic] declared to be immature in civil society; her husband is her natural curator”.127

Women were incapable of governing themselves, to act according to principles: in short, to meet the qualifications that civil society demanded of its practitioners. Not surprisingly, they were therefore to remain within their homes, and fulfill their duties as loving spouses – not rallying for a political voice where they did not belong. Men, on the other hand, were precisely all that women were not. By their greater “physiological power and courage” they would protect humankind’s weaker half, and, through the power invested in them by nature, assume the role prescribed to them as the voice of the emerging civil society.128 Kant was not original in claiming this.129 Earlier in the eighteenth century, Jean-Jacques Rousseau (1712-1778), had written that men and women were of entirely different kinds. Émile, the boy in Rousseau’s immensely influential Bildungsroman of the same name, were trained to be self-determining and capable of leading a public life. Sophie, Émile’s future wife, was on the other hand taught to restrict herself, please her husband and not to be too inquisitive. The divide separating the sexes was absolute; and to stray from natures pre-set path was the most severe of vices. The relation between men and women rested on total incommensurability and demanded full adherence to keep society from collapsing from its own corrupting potential.

“Without Letting the Tears Fall in Drops”

It is easy to see how epigenesis and the ideology of productive causality helped, or even founded, the ideological formation of sex difference in the late eighteenth century from the passages above. But the theory also had other consequences. In the introductory section of this paper I claimed that epigenesis lives a peripheral existence in gender studies. In the

129 Rousseau’s influence on Kant is immense in this regard. Feminist critiques of Kant’s adherence to politics of sex difference have pointed this out countless times. Apart from the passages already interrogated. I will not labour more than necessary to ground this though. The most empirically driven and astute of the works I have relied upon is Isabel V. Hull’s chapter “The Implicit Sexual Model (Kant)” in Sexuality, State, and Civil Society in Germany, 1700-1815, Cornell University Press (Ithaca & London, 1996), p. 245-51. Hull offers a paradigmatic reading of Kant’s Anthropologie and three critiques: “[T]he social embeddedness of the Anthropology reinforces the gender dichotomous and goal-oriented view of women. […] [T]he same forces […] had meanwhile encouraged dichotomous ideas about men and women to flourish among late Enlightened and early liberal writers surrounding Kant. He had even less reason 1798 to doubt his view than he had in 1764. Finally, the fact that Kant’s intervening critical philosophy, which conceivably might have encouraged him to adopt a more equal view of women by virtue of their shared rational qualities, did not do so, strongly suggests that Kant assumed that der Mensch about whom he wrote, was really der Mann (p. 305).” From a strictly philosophical perspective, Robin May Schott’s Cognition and Eros: A Critique of the Kantian Paradigm still holds its forte. See also May Schott’s anthology on feminist readings of Kant: “Feminist Interpretations of Immanuel Kant” in Re-reading the Canon, Penn State Press (Pennsylvania, 1997).
upcoming analysis I will explain the reason for this in light of the failure of Kant-scholars to, in John H. Zammito’s words, properly stabilize the concept. My argument will be that the evasive nature of epigenesis stems from its use of two separate and incommensurable principles of bodily stratifications. The unstable character of the theory has, I will argue, perforce precluded it from being adequately theorized since it counter-intuits the analytical concepts of bodily identity heuristically employed in gender studies of the period. To do this, I now turn to the third phrase of the passage on epigenesis quoted in before, “similarities of variation”, and compare it the notion of manliness employed in pragmatic anthropology.

With Sievers-Müller we saw how epigenesis promoted the much, in feminist writing, debated question of a “two sex model”, or of ‘modern’ sex difference. The implications of this tied physiology to politics by way of, as Dorinda Outram has put it, “a process of exclusion, and differentiation.” A closer examination however, shows that the theory also stratifies in the exact opposite way. Once the view shifts from parent to offspring, from productive causes to embryological development, Kant will change his epigenetic model, a fact unacknowledged in scholarship. Embryogenetical differentiation of parental material developed the offspring not into either a male or a female, but along a so-called “one-sex model” of anatomical isomorphy between men and women.

The offspring’s embryological development employs two concepts of great importance for the life sciences during the late eighteenth century: “free formation” (freie Bildung) and the earlier mentioned “formative drive” (Bildungstrieb) Kant borrowed from Johann Friedrich Blumenbach (1752-1840), the physical anthropologist. By the former, “[Kant] understand

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131 I use Laqueur’s notion of a “one-sex model” which, according to him, was dominant in politics of gender during antiquity and the Renaissance. His thesis argues that the theory was abandoned at the end of the eighteenth century: “Aristotle and Galen were simply mistaken in holding that female organs are lesser form of the male’s and by implication that woman is a lesser man (Making Sex: Body and Gender from the Greeks to Freud, p. 149).” A reading of Kant’s embryogenetic model shows otherwise.
132 The Kant-Blumenbach connection is important for an understanding of Kant’s Bildungstreib. Their correspondence was important, but not particularly extensive. They sent their work, as well as letters, to each other; but apart from this, and the few scattered cross-references made between them textually, research-material is limited. The two major instances where Kant explicitly refers to Blumenbach is (a) the famous §82 of Kritik der Urteilskraft in which he argues that “[n]o one has done more for the proof of this theory of epigenesis as well as the establishment of the proper principle of its application, partly by limiting an excessively presumptuous use of it, than Herr Hofr. Blumenbach (Kant, Kritik der Urteilskraft, p. AA:V:424).” and (b) the thank-you letter Kant sent to Blumenbach for sending him his newly reprinted Über der Bildungstrieb (1781/9). In this, Kant writes the following: “I have found much instruction in your writings, but the latest of them has a close relationship to the ideas that preoccupy me; the union of the two principles that people have believed to be irreconcilable, namely the physical-mechanistic and the merely teleological way of explaining organized matter (Kant, Briefwechsel 1790, p. AA:XI:185).” Starting with Sven-Eric Liedman’s work, these two passages have spawned a small but energetic scholarly field of its own. The latest effort of interest for our purposes is Robert J. Richards, “Kant and Blumenbach on the Bildungstreib: A Historical Misunderstanding”, Studies in History and
that by which, from a fluid at rest, as a result of the evaporation [Verflüchtigung] or separation [Absonderung] of a part of it (sometimes merely of the caloric), the rest assumes upon solidification [Festwerden] a determinate shape or fabric (figure texture) /…/ Here is presupposed what is always understood by true fluidity, namely that the matter in it is to be regarded as fully dissolved, i.e. not as a mere mixture of solid parts merely suspended in it.”

The definition of free formation includes a lot of different technicalities drawn from a wide and often conflicting spectrum of scientific disciplines. In addition, the veritable hodge-podge of processes involved produces a rather obscure portrayal of what a free formation actually does. Two principal characteristics can be extracted, however: “solidification” and “true fluidity”.

The process of free formation solidifies the “complete dissolution of matter” characterizing the original state of embryological materiality. The state of true fluidity “ossified” (verknöchert) through this operation does not initiate from a “mere mixture” of parental parts. In contrast to the Hippocratic two semence version of epigenesis, free formation employs an Aristotelian flavour of the theory according to which the parents contribute in terms of a casua formalis and a casua materialis. The formative part of the conceptual pair

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115 An “ossified” state of solidity is reached, according to Kant, when the living form no longer undergoes changes. See *Kritik der Urteilskraft*, p. AA:V:419.

116 Kant aligns the Bildungstrieb within the conceptual sphere of casua formalis in conjunction with Blumenbach’s principle of the same name. “[Blumenbach] leaves natural mechanism an indeterminable but at the same time also unmistakable role under this incrutable principle of an original organization, on account of which he calls the faculty in an organized body (in distinction from the merely mechanical formative power [Bildungskraft] that is present in all matter) a formative drive [Bildungstrieb] (standing, as it were, under the guidance and direction of that former principle) (Kritik der Urteilskraft, p. AA:V:424).” Kant did not have his concepts in proper order though. At §65 of *Kritik der Urteilskraft*, the term signifying the process of organization switch name with the mere “mechanical /…/ power that is present in all matter”. Here, the formative Trieb is named formative Kraft. “– An organized being is thus not a mere machine, for that has only a motive power, while the organized being possesses in itself a formative power, and indeed one that it communicates to the matter, which does not have it (it organizes the latter); thus it has a self-propagating formative power, which cannot be explained through the capacity for movement alone (that is, mechanism) (p. AA:V:374).” Compare these passages with: *Über den Gebrauch teleologischer Principien in der Philosophie*, p. AA:VIII:180.; *Briefwechsel 1790*, p. AA:XI:185.; *Handschriftlicher Nachlaß: Opus Postumum: Erste Hälfte: Fünftes Convolut*, p. AA:XXI:559.
differs from the material principle in the sense that the former “virtualizes” the latter. 137 This is what Kant means by a formative drive. “With epigenesis”, Kant claims, “we have to suppose /…/, that an organic body, once it has emerged through generation, contains within itself the condition, henceforth to be spiritualized [beseelt] by the intelligible, vivifying principle; and that in the body the soul is not locally, but only virtually present.”138

Kant’s thesis about a “vivifying principle” takes place in the discussion regarding the mind-body distinction popular at the time: did these two communicate as separate entities, as René Descartes (1596-1650) thought, through the pineal gland (Zirbeldrüse)?139 Or did the soul have a material, or local, place in the cerebral fluids, the “brain water” (Hirnwasser), as proposed by the physician and anatomist Samuel Thomas Soemmerring (1755-1830) in a paper Kant commented on?140 Kant refuted both theses. It would be absurd, he thought, to situate the soul, an intelligible principle of life, in the body as Soemmerring had done. But, if separate, it would be equally implausible to construe something so trivial as a gland to be the communicative vehicle between soul and body. “[O]ne can only say that the soul is in connection with the body”, Kant polemically argued, “and where the body is, there is the soul, but one cannot indicate a place in the body for the soul”.141 He continues: “A human being is ensouled – effects of a life principle occur in him. A soul in the body means a soul works on the body. Local presence is impossible with it (virtual however is possible).”

The vivifying principle of the soul formed matter as an “[e]ffect on the body”142 by solidifying it into higher degrees of bodily development, a procedure stimulating material simplicity to attain higher levels of complexity along a “ladder of organization” (Stufenleiter der Organisationen).143 The increasingly more distinct being generated in free formation

138 Kant, Metaphysik Zweiter Theil, p. AA:XXVIII:190
139 Kant refutes this in the Dohna notes: “Descartes put the seat of the soul in the pineal gland, glandula pinealis, – in the brain, but after it was found filled with sediment this opinion ceased (Kant, Metaphysik Dohna, p. AA:XXVIII:686).”
140 Soemmerring had asked Kant to provide a comment for his Über das Organ der Seele (1795). Kant obliged to Soemmerring’s request, but his piece on it was not particularity celebratory. Kant warned Soemmerring to not attempt a localization of the soul because such an endeavour would conflate two, according to Kant, obviously conflicting disciplines of science. Kant’s piece was only published in conjunction with Soemmerring’s treatise. Arnulf Zweig added it, however, to the Akademie Ausgabe as Aus Soemmerring Über das Organ der Seele, p. AA:12:31-5.
141 Kant, Metaphysik Vigilantius, p. AA:XXIX:1029.
142 Kant, Metaphysik Dohna, p. XXIIIX:685.
143 The attentive reader recognizes the resemblance between the “die Stufenleiter der Organisationen” of epigenesis and “der Naturkette” of preformationism. Arthur O. Lovejoy’s classic analysis in The Great Chain of Being: A Study of the History of an Idea (1933) shows how Kant and other late eighteenth century naturalists transformed the law of static and immutable continuity into a temporalized, dynamic, and, in Kant’s case at least, heuristic principles of natural orderliness. Kant’s ladder of organization is one expression of this idea, which he
matured from a state of formless infantilism into an increasingly hard, adult and solid rigidity. Needless to say, the process was not gender neutral. Susan Shell Meld and Felicitas G. Munzel, two Kant-scholars, have both pointed out the etymological roots of virtualiter in Kant. The term, Shell argues, is linked “with an informing power (or virtus) traditionally (and linguistically) associated with maleness”. The feminine material or “maternal soil” worked upon by the virtualizing drive had, by way of contrast, “mere receptivity and passivity”.

The confused, chaotic and simple state bereft of the beneficiary effect of the maturing virtú approximates women and children to lower levels of bodily and intellectual organization. But contrary to Shell’s remark, the formative drive virtualizing matter was not a male principle. In an early work, Allgemeine Naturgeschichte und Theorie des Himmels oder Versuch von der Verfassung und dem mechanischen Ursprunge des ganzen Weltgebäudes, nach Newtonischen Grundsätzen abgehandelt (1755), Kant described the event like this:

In the measure in which [man’s] body develops, the fitness of his thinking nature also obtains the corresponding degree of perfection, only reaching a steady [gesetztes] and manly [männliches] capacity when the fibres of his tools [Werkzeuge] have delivered the strength and endurance which is the completion of their development.

What kind of “man” does Kant refer to here? The use of manliness above is tricky. Kimmel and Mosse view the concept as a term denoting men’s homosocial hierarchies. Kant uses it in this way too. But, when added to its heterosocial counter-part, problems arise.

Kant’s and his male colleagues’ work is rich in homosocial negotiations of manliness. George L. Mosse shows, in The Image of Man: The Creation of Modern Masculinity how, during the late eighteenth century in Germany, the concept tied a wide range of ideas –


144 For Munzel’s analysis, see her Kant’s Conception of Moral Character: The ‘Critical’ Link of Morality, Anthropology, and Reflective Judgment, p. 166; for Shell’s, see below.
146 Kant, Kritik der Urteilskraft, p. AA:V:428.
147 Kant, Mongrovious, p. AA:XXIX:913.
148 Kant, Allgemeine Naturgeschichte und Theorie des Himmels oder Versuch von der Verfassung und dem mechanischen Ursprunge des ganzen Weltgebäudes, nach Newtonischen Grundsätzen abgehandelt, p. AA:1:356. Kant recycled this passage in a modified form when describing the different stages of philosophical maturity in Kritik der reinen Vernunft: “The first step in matters of pure reason, which characterizes its childhood [Kindersalter], is dogmatic. The [censorship of reason] is skeptical, and gives evidence of the caution of the power of judgment sharpened by experience. Now, however, a third step is still necessary, which pertains only to the mature [gereiften] and manly [männlichen] power of judgment, which has at its basis firm maxims of proven universality, that, namely, which subjects to evaluation not the facta of reason but reason itself (p. AA:III:497).“
autonomy, nationalism, and freedom – together with a stratifying principle differentiating social categories of men depending upon their approximation of certain ideals, or degrees of Bildung.\textsuperscript{149} In a reading of Johann Gottfried Herder, Kant’s student during his university years, Mosse points out how the ideal of manliness meant “that through self-cultivation every man must grow like a plant toward the unfolding of his personality until he becomes a harmonious, autonomous individual, exemplifying both the continuing quest for knowledge and the moral imperative.”\textsuperscript{150}

Herder was not alone in using horticultural terminology to explain manliness. “When one regards the nature of most men”, Kant writes later on in the text quoted above apropos the spread of unmanliness amongst the men in the age of Enlightenment,

\begin{quote}
man seems to be created as a plant, to draw in sap and grow, to propagate his kind and finally to grow old and die. /…/ If one seeks the cause of the obstacles that keep human nature in such deep debasement, it will be found in the grossness of the matter in which his spiritual part is sunk, in the inflexibility of the fibers and sluggishness and immobility of the sap/fluid that should obey its stirrings.\textsuperscript{151}
\end{quote}

The process Kant describes parallels his account of the epigenetic growth of manly “tools”. Here, however, the “man” degenerates rather than develops. By sinking deeper into “the grossness of matter” and spiritual “sluggishness” of the fluid plant-like existence of lower degrees of bodily Bildung, the unmanly man begins to lose his proper solidity. No longer firm and erect, “[t]he nerves and fluids of his brain deliver to him only gross and unclear concept”. The descent into material confusion was a highly stigmatizing event. The loss of stern hardness revealed to the soft, shapeless man’s social surroundings how poor his resolve was. The man suffering from de-solidification would, Kant argued, remain in a childlike state of dependence that not only displayed a flawed character of insufficient means for self-determination. Having failed to properly mature and cultivate the germs and dispositions phyletically bestowed to him, the man of limp extremities would forfeit his status as an active


\textsuperscript{150} George L. Mosse, \textit{The Image of Man: The Creation of Modern Masculinity}, p. 8.

\textsuperscript{151} Kant, \textit{Allgemeine Naturgeschichte und Theorie des Himmels oder Versuch von der Verfassung und dem mechanischen Ursprunge des ganzen Weltgebäudes, nach Newtonischen Grundsätzen abgehandelt} (1755), p. AA.1:356.
citizen and reduce himself to mere passivity, hence fail in fulfilling pragmatic anthropology’s
dictum to ‘make something of oneself’.\footnote{152}

The not too optimistic view on the state on manliness applied to all kinds of social
stratification of men. But of particular interest to Kant were the non-White races. In the much
later Über der Pädagogik (1804), he warns his readers that, if not properly cultivated, men
would forever lose their chance for “manhood” [Mannbarkeit] and become “like the
inhabitants of Tahiti [Otaheite]”\footnote{153} – soft, lazy, and formless like undisciplined children. Set
in a geo-political context, the example of unmanliness organized the four human races in
structural homology to the process of Bildung and solidification. The unilinearity presupposed
in the racial ladder of organization could be proven, Kant thought, by way of hybridity:

Negroes and Whites, while not different kinds of human beings (since they belong presumably to one
phylum), are still two different races because of the two perpetuates itself in all regions and both
necessarily beget half-breed children or blends (mulattoes) with one another.\footnote{154}

Different races were not different humans, Kant claims. The proof that “[Negroes and Whites]
belong \ldots/ to one phylum” employs the Buffonian rule popularized in Histoire naturelle
générale et particulière (1749–1778) according to which differently formed beings belonged,
if they could beget fertile offspring with one another, to the same phyletic material. This is
why Kant uses the phrase “similarities of variations” in the quote on epigenesis and hybridity.
The four human races marked four differently “ossified” stages along a ladder of formation,
but they belonged to one “stock” and were therefore variations of the same.

The intersection of and between race and manliness shows how complex the ideas
circulating around the discursive core of epigenesis could be. It also shows how wrought with
inconsistencies it was. In “Race and Gender: The Role of Analogy in Science” (1986), Nancy
Leys Stepan examines how, during the late Enlightenment, “lower races represented the
‘female’ type of the human species”.\footnote{155} The conflation of “race and gender” provided
scientists with the key needed to solve the problem of grounding the naturalness of hierarchies
intersecting skin color and sex. By analogizing each other, race could serve as a legitimization
of sexual hierarchies and sex return the favour by grounding race. But, according to Stepan,
the intersection between race and gender also promoted politics of sex difference. This was not the case with Kant.

Races occupying the lower regions of physiological organization were degenerations of an original, manly archetype and therefore feminine or unmanly. The approximation of womanly, or childish, formlessness characterizing immature races situated the difference between men and women along the same axis. For this reason, Kant’s theory of race actually cancels his theory of sex difference. This becomes starkly clear when the two ideas are superimposed upon each other. Since the category of race necessarily refers to both males and females, a manly race will produce women with racial characteristics in conflict with their sex. Thus a white female may be properly womanly because of her sex, but her race will turn her into the opposite femininity: a manly woman. By contrast, any woman of non-White descent will occupy the lower rungs of development; but because of her sex this actually makes her into Kant’s ideal: an unmanly or womanly woman.

Kant did not, of course, elaborate upon the implications of his system of epigenesis in terms like these. But the problem hampered many accounts of race and sex during the late eighteenth century. Schiebinger has pointed to this phenomenon, arguing that politics of sex difference and politics of race did not in any rigid sense converge for any theorist at the time:

The notion of a single chain of beings stretching throughout nature (and society) created a problem of where to fit women. /…/ Scientific racism depended on a chain of being or hierarchy of species in nature that was inherently unilinear and absolute. Scientific sexism, by contrast, depended on radical biological divergence. /…/ Thus the notion of a single chain of being worked at odds with the revolutionary view of sexual difference which postulated a radical incommensurability between the sexes (of European descent).156

Schiebinger confirms my thesis that Kant’s theory of race and his view on sex difference did not match. But her account suffers, I think, from two misconceptions. First, she associates race with the notion of a “great chain of being”, an idea that belongs to preformationists like Haller and Bonnet of which neither had any theory of race resembling the one Schiebinger describes above.

Secondly, the problem “with where to place women” did not only collide with racial stratification, but with every homosocial relation within the category of men. The line separating men from women from the perspective of manliness rested upon degrees, not

differences. And this line could sometimes be so thin as to be practically non-existent. A case in point is the risky business of the tearful eye. “Laughing is manly [männlich]; weeping on the other hand is womanly [weibisch]”, Kant points out. “And when tears glisten in a man’s eyes, it is only his being moved to tears that can be forgiven, and this only if it comes from magnamonomious but powerless sympathy with others’ suffering, without letting the tears fall in drops [my italics], and still less if he accompanies them with sobs, thereby making a disgusting music.” If sad or “moved” a man’s eyes may be moist, but woe to he who dares shed tears. Men who have succumbed to the feminization of the cultural dilution of “sweetness” (sußigkeit) in contemporary society had lost their “manly strength” and been transformed into the horrid “petit maitre”.157

The unmanly or “weibisch” dripping of drops is an extreme case, yes. But the tendency to homosocially organize men in conflict with their difference from women is structurally pervasive whenever Kant enters into his epigenetic mode of social and physiological stratification. The "similarities of variations" of embryological development and the “mix” between “productive causes” always runs contrary to each other by forming bodies sexually different yet always the same. This is how Kant can say in the marginal notes to his major work on sex difference, Beobachtungen über das Gefühl des Schönen und Erhabenen: “[w]e have become soft and womanly”158 while claiming the opposite in the actual text: “here it is not enough to imagine that one is dealing with human beings; one must at the same time not disregard the fact that these human beings are not of the same kind.”159 Because they belonged to the same organizational ladder, men and women could be compared. Because they were “not of the same kind” they were also incomparable.

“The Two-Fold Interest of Reason”

Why does a book that purports to present one possible argument contain two?
(Martin Schönfeld, The philosophy of the Young Kant: The Precritical Project, p. 192.)

The phrases, “productive causality” and “similarities of variations”, tied together in the lecture on epigenesis presented at the university of Königsberg annuls each other. The ideology of heterosocial sex difference implied by the first cuts living beings into two categories of absolute alterity (females and males) by imposing upon them a grid of

159 Ibid., p. AA:II:228.
mathematical compartmentalization. The second phrase, on the other hand, does the opposite. Embryological development is a process of maturation turning, if all goes well, limp children into sturdy and manly plant-like beings able to be their own causes and masters. The ‘ensouling’ Trieb vivifying the formless state of initial fluidity orders living beings according to a unilinear “ladder of organization”. But, in doing so, the process of embryological growth breaches the watershed of difference established by productive causality. Because the degree of manliness, a homosocial concept, operates by situating womanliness as the lower referent of organization, there can be no rigid border separating males from females within its domain of bodily structuration.

So, why, one might ask, did Kant choose to subsume both phrases as epigenetic processes when they clearly betray each other? In this section I pull the phrases together and reconnects them with the two problems I started this paper with: first, why the concept of epigenesis in Kant-scholarship has never been stabilized and, secondly, why it has been basically eradicated in historical research on the sexual politics of late Enlightenment. But first: the infamous relation between Kant and Herder.

Epigenesis poses a problem of how to reconcile sameness and difference in organic beings. Kant wrote a review of Herder’s Ideen zur Philosophie der Geschichte der Menschheit (1784) some years before publishing his own mayor work organic beings grappling with this problem. We have already briefly acquainted ourselves with Herder’s thought about manliness, horticulture and autonomy. In Ideen... he broaches another subject close to Kant’s project: epigenesis. But Kant was critical.

At first sight, Kant seemingly agrees with Herder’s view on epigenesis. He writes:

[Herder] wants to dismiss on the one side the system of evolution and yet also on the other side the mere mechanical influences of external causes as providing unworkable grounds of elucidation, /.../ with this the reviewer fully concurs/.../. Like Herder, Kant too thought that “the system of evolution” would be equally “unworkable” as the explanation of organic beings from “mere mechanical influences. But in the follow up sentence Kant proposes a “reservation”:


if the cause organizing itself from within were limited by its nature only perhaps to a certain number and
degrees of differences in the formation of the creature /.../ then one could call this natural vocation of the
forming nature also ‘germs’ or ‘predispositions’, without thereby regarding the former as primordially
implanted machines and buds that unfold themselves only when occasioned (as in the system of
evolution), but merely as limitations, not further explicable, of a self-forming faculty, which latter we can
just as little explain or make comprehensible.\textsuperscript{162}

Kant wanted to restrict the full-fledged form of epigenesis Herder defended because the view
of nature implicated by it would lead to an untenable mutabilism. The term refers to the idea
purported by Maupertuis and other French materialists of \textit{hylozoism} that some quarters of
German anti-preformationism had taken to heart during the middle of the eighteenth century.
In Herder’s interpretation of it, hylozoic epigenesis meant that all matter had immanent
organic potentialities that, through “genetic forces” (genetische Kräften), could be developed
regardless of differences between species and other limitations of natural orderliness. Kant
complained about this since, as he put it, matter was dead and it would be contradictory to
conflate inertia with a principle of life. Furthermore, a belief in material mutability would
eradicate the, by Kant and Blumenbach, violently defended thesis of organic and inorganic
discontinuity. In addition, a dynamic understanding of nature such as Herder’s would
preclude every attempt to discern nature’s own categories. The “cause organizing itself from
within” could not, as Herder had proposed, therefore generate freely but must be construed as
“limited by its nature”. Naturalists had to separate dead matter from living, divide species
from each other and dispel the notion that all living beings originated from “a single
procreative maternal womb”.\textsuperscript{163} Herder’s ideas of an unbounded form of epigenetic fecundity
were “so monstrous [ungeheuer] that reason recoils before them”.\textsuperscript{164}

The principal problem with Herder’s epigenesis, however, concerned the ladder of
organization, the intuition of late eighteenth century naturalism to situate all life along the
same axis of orderliness. Herder used the concept as well, but in contrast to Kant’s, his
version of it he did not leave any room for specificity and difference. This is why Kant urges
his former student to abstain from the most excessive speculations regarding organic life. This
is also why his theory was so complex and conflict-ridden.

The first time Kant tackled the question of natural continuity-discontinuity seriously was in
1781 when writing the “Anhang zur transsscendentalen Dialektik” to \textit{Kritik der reinen
Vernunft}, a passage paving the way for the full-blown account that would appear in \textit{Kritik der

\textsuperscript{162} Kant, \textit{Recensionen von J. G. Herders Ideen zur Philosophie der Geschichte der Menschheit. Theil 1. 2.}, p.
AA:VI:63.
\textsuperscript{163} Ibid., p. AA:VI:57.
\textsuperscript{164} Ibid., p. AA:VI:57.
Urteilskraft nine years later. Under the rubric “Von dem regulativen Gebrauch der Ideen der reinen Vernunft”, Kant argues that “the student of nature” must grapple with a “twofold interest of reason” (das zwiefache Interesse der Vernunft): human reason’s need to reflect upon nature through the maxims of “the manifoldness of nature” (der Naturmannigfaltigkeit) and of “the unity of nature” (der Natureinheit).165 The conflict between the laws of mathematical “specification” and dynamic “homogeneity”166, as Kant calls them, brought the naturalist at odds with himself. Because living beings presents themselves as discrete units the naturalist must presuppose that every being is organized through radical difference in relation to other forms of life. But since reason demands that every reflection search for systematic unity in nature, the naturalist must also look for sameness, an “analogy of forms”167 between separate bodily configurations. The development of these should thereafter be traced back to a “common schema”, as Kant argues in Kritik der Urteilskraft.168 Seen from this perspective, living bodies did not in any rigid way differ from each other. “[B]y the shortening of one part and the elongation of another”, the comparative anatomist should be able to see how nature’s beings were variations of the same proto-typical blueprint.169 In contrast to the law of specification, the dynamic principle of homogeneity urged the naturalist to look for “a kind of affinity of various branches, insofar as they have all sprouted from one stem.”170

The twofold interest of reason forces the naturalist to view nature as endlessly mutable and fixedly rigid. James L. Larson has shown how Kant’s use of both an “atemporal taxonomy of contemporary natural history and the genetic history of nature” set him apart from other naturalists at the time.171 Unlike the Linnaean, the Kantian naturalist should not settle with a “Naturbeschreibung” when reflecting upon nature. Yet he must not give in to the kind of unrestrained mutability Herder represented either. The trick was to combine a descriptive approach with a “Naturgeschichte”.172 The former would categorize organic beings “as they are now” by ordering them in a static grid highlighting the differences between nature’s creatures.173 The latter, on the other hand, “would teach us about the changes in the shape of

165 Kant, Kritik der reinen Vernunft, p. AA:A668/B696.
167 Kant, Kritik der Urteilskraft, p. AA:A419.
169 Ibid., p. AA:V:419.
the earth, likewise that of its creatures (plants and animals) that they have undergone through natural migrations and the resultant subspecies from the prototype of the phyletic species.\textsuperscript{174}

Kant accounts for the puzzle of combining the two ways of perceiving nature by postulating the existence of a preformed “original organization” in epigenetic generation, the germs and predispositions mentioned above.\textsuperscript{175} As preformed, the regularity of living forms could be taxonomically inserted in various schemas mapping the natural world in neat brackets, Kant argued. But, since the germs and dispositions endowed phyletically to living beings merely suppressed certain illicit developments, these could function well without thereby sacrificing reason’s need to see things dynamically. The problem, however, was that these two modes of cognition did not actually harmonize particularly well. The generation of organic beings did solidify dynamically, but they were simultaneously “limited by its nature only perhaps to a certain number and degrees of differences”; they did develop according to forces sensitive to environmental changes, but their form did also imposed upon them a static orderliness; they did developed historically through Kindersaltern and on to maturity, but their form was also atemporally fixed; they did dynamically develop according to sexual sameness but nature ordered living beings sexually discontinuous as well.

**Generic Preformation**

The peculiarity of Kant’s epigenetic approach is the attempt carried out in its name to satisfy both demands of reason without thereby sacrificing the integrity of the theory’s discursive space. This is why Kant scandalously calls, in §81 of *Kritik der Urteilskraft*, his version of epigenesis “prestabilism” or “generic preformation”.

Now prestabilism can in turn proceed in two ways. Namely, it considers each organic being generated from its own kind as either the educt or the product of the latter. The system of generatings as mere educts is called that of individual preformation or the theory of evolution; the system of generatings as products is called the system of epigenesis. The latter can also be called of generic preformation, since the productive capacity [Vermögen] of the progenitor is still preformed in accordance with the internally purposive predispositions that were imparted to its stock, and thus the specific form was preformed virtualiter.\textsuperscript{176}

This passage was written exactly one page after the hybrid proof, quoted in “Hybrid Indications”, arguing against preformationism had been submitted. But we now see that Kant did not therefore posit epigenesis and its rival theory as opposites to each other. Since nature did elicit structure and order, some form of preformativity must be presumed even in

\textsuperscript{174} Ibid., p. AA:II:435.
\textsuperscript{175} Kant, *Kritik der Urteilskraft*, p. AA:V:424.
\textsuperscript{176} Kant, *Kritik der Urteilskraft*, p. AA:V:422-3.
epigenetic models of nature, he argued. If these were absent, then nature would be inexplicable and the demand of reason’s to seek out systematicity in nature would have to be forfeited.

The consequences of Kant’s move baffles. Not only does he make preformationism and epigenesis related to each other. By conceptualizing the predispositions as already stored in the embryological “stock”, he transforms epigenesis into a kind of preformationism. To fully savour the paradoxicality of the move we need only recall how predispositions, a preformationist idea in the quote above, have hitherto been employed to describe natural volatility, that is, how hybrids showed that nature suffered from internal fallibility. This is a proof of epigenesis phrased in the vocabulary of its rival theory.

Kant’s motivational grounds for pulling preformation and epigenesis into the same conceptual sphere confounds for several reasons. But it is an interpretative problem only insofar as one attempts to read the theory as if Kant were offering a coherent piece of philosophy to his reader. And that, I argue, he did not. I began this paper by claiming that research on Kantian epigenesis suffers from two problems: that, in Zammito’s words, “neither the general concept of epigenesis in the eighteenth century nor its place in Kant’s thinking has ever been stabilized in the scholarship.” And, secondly, that Kant’s theory of epigenesis has been basically eradicated from the history of sexual politics because of that instability. The key to answering both sets of complications relates to this one passage presented above.

In the first instance, a reconstruction of Kant’s epigenesis will have to give up the ambition to categorize it in the traditional terms of animal generation on offer during the late eighteenth century. The problem with Kant’s view on animal generations is not whether he concurred with epigeneticists or preformationists. Kant-scholars, however, have failed to see this. As of now, two approaches can be identified. In the first section of my analysis, I showed how epigenesis could only be hypothetically known, although this was not, contrary to Zammito’s claim, a repudiation of the theory. This was the first example I gave as to why scholars have failed to conceptualize how and why epigenesis worked. The second example concern the proximity between epigenesis and preformation described above. John H. Zammito, J.D. McFarland and Philip Sloan have, on the one hand, argued that Kant, despite his reservations regarding the hypothetical nature of epigenesis, came “grudgingly” around later in his ca-

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Kant, Zammito argues, foundered in his choice between preformation and epigenesis but eventually rejected the latter by making it into a version of the former.

Marcel Quarfood and Peter McLaughlin claim, on the other hand, that Kant, regardless of what he calls his theory, was unquestionably an epigeneticist. Quarfood cites the obvious case of hybridity for his thesis arguing, correctly, that no preformationist would ever have conceded to the natural perviousness implied in racial mixing. The juxtaposition of both positions shows that, in order to categorize Kant’s “generic preformation” as belonging to one field or another, the specificity of his theory must be reduced to something it was not. With Zammito, we could claim that Kant, because of his choice of words, did subscribe to preformation. But then we would have to neglect that, for Kant, nature developed organic beings epigenetically. With Quarfood, on the other hand, we could argue that Kant, despite his choice of words, was an epigeneticist. But then we would have to foreclose his use of preformed and prestabilized “germs and predispositions”. Either way, something gets lost.

The third alternative I propose would consider how Kant’s choice of words does not merely react to pre-given positions. To stabilize Kant’s epigenesis it is not enough to review

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179 John H. Zammito, “Kant’s Early Views on Epigenesis: The Role of Maupertuis” in Justin E. H. Smith (ed.) The Problem of Animal Generation in Early Modern Philosophy, p. 350. See also Sloan’s claim in “Preforming the Categories: Eighteenth-Century Generation Theory and the Biological Roots of Kant’s A Priori”: “My analysis also suggests some important shifts in these underlying foundations as Kant was drawn into more direct contact with theoretical developments within the life sciences in the late 1780s. The new Wolff-Herder epigenesis would abolish, if accepted, the notion of preformationism in either its strong individual form or its weaker Haller-Bonnet expressions. Initially, Kant rejected epigenesis as it had been employed by Herder, but modified his own meaning of Keime und Anlagen. The “epigenesis” of pure reason introduced in 1787 still relies on the preformation of germs. Finally, through the late encounter with Blumenbach's developed epigenetic theory in 1789, Kant seems to have found a route to a more satisfactory solution that now assimilated his notion of the inherent Anlagen to Blumenbach's Bildungstrieb. The Anlagen had now come to designate inherent ordering principles that are pre-existent, but are also dynamic and purposive. This was still to alter Blumenbach's theory in preformationist directions, since Blumenbach did not accept after 1780 any kind of prestructuring of matter by pre-existent germs or predispositions independent of the action of the Bildungstrieb. But at least for purposes of the Critique of Judgment, the concept of preformed Keime, exactly the point under attack in Blumenbach’s critique of preformationism, disappeared. The foundations of Kant's moral theory, however, required Kant to maintain some aspects of the Keim-Anlage theory after 1790 to allow for the gradual unfolding of innate human goodness over time (Sloan, p.252-253).” See also J.D. McFarland’s preformationist reading of Kant in Kant’s Concept of Teleology, University of Edinburgh Press (Edinburgh, 1970), p. 39.

how it relates to already defined alternatives. It is not enough to, like Kant-scholars do now, read epigenesis as a “unit idea”\textsuperscript{181} and then proceed to diagnose if Kant matches it or not. If my reading is correct, it shows that epigenesis in Kant’s treatment changes the rules of animal generation. To uphold this view we would also need the temerity to think that Kant may not have been coherent. A third way of reading “generic preformation” would stress the strife between the theory’s different epistemological tenets – the clash between mathematical Naturbeschreibung and dynamic, temporal Naturgeschichte – and investigate how a subscription to Kantian epigenesis entailed a subscription to conflict and inconsistency. This claim would also require of us the temerity to think coherently about incoherency because the former may not be the same today as it was two hundred years ago in Königsberg.

Extrinsic or Intrinsic?

My second thesis apropos epigenesis is simple. We have earlier seen how the claim of Critical studies on Men and Masculinities, that gender must be seen in terms of both homo- and heterosociality, could be applied to Kant’s epigenesis. We have also seen how this claim empirically conflicts since these two modes of social organization clashes with each other. An explanation of this from within the strictures of Critical studies on Men and Masculinities could interpret the ideology of productive causality and embryological development as cultural relations referring to an identity existing outside of social domains: a biological sex. This is, the reader recalls, how Kimmel understands how “gender [shapes] social life.” I repeat his position: “By gender I mean the sets of cultural meanings and prescriptions that each culture attaches to one’s biological sex.”\textsuperscript{182}

By reading epigenesis in this way we could say that the conflict of and between a dynamic homosociality and a static heterosociality takes place in the malleable sphere of social “prescription”, a reading that would vouch for the integrity of social identity insofar as biology guarantees a minimal point, or anchorage, upon and around which society organizes itself. But Kant’s epigenesis does not interpret biological categories by attaching to them this or that cultural meaning. This is so not only because, as Jordanova pointed out earlier, physiology and ideology were at their basis fundamentally the same for publicists like Kant.

\textsuperscript{181} “[E]ach age seems to evolve new species of reasonings and conclusions,” Arthur O. Lovejoy writes, “even though upon the same problems (The Great Chain of Being: A Study of the History of an Idea, p. 4).” A “unit idea” is the term for these supposedly ‘perennial problems’. I do not mean that Kant-scholars today use this kind historiography, but they tend to see, I think, epigenesis as a transcendent concept in the same way Lovejoy see the ideas he studies.

\textsuperscript{182} Michael Kimmel, \textit{Manhood in America: A Cultural History 2nd Ed.}, p. 2.
Epigenetic configurations of parental productivity and embryological differentiation produces biological categories, they are not interpretations of them. The conflict, in other words, is not a conflict of meaning, but of the object culture attaches meaning to. To get a grip on this, let us peruse once again the organization of reproduction.

The different moves I have been analyzing so far share in that the take place within the semantic space of organized beings. Although Kant speaks of these as singular bodies, an organized being can never be of one sex or another.

There is only one [case where] extrinsic purposiveness is connected with the intrinsic purposiveness of organization. This [case] is the organization of the two sexes as related to each other to propagate their species. Here, although we must not ask what is the end for which the being had to exist [as] so organized, [that being] still serves as a means extrinsically related to a purpose. For here, just as in the case of an, we can always go on to ask: Why did such a pair have to exist? The answer is: This pair is what first amounts to an organizing whole, even if not to an organized whole in a single body.\footnote{This passage stars in two places in feminist Kant-research: in Sievers-Müller’s reading of Kant’s politics of sex difference in \textit{Self-Generation: Biology, Philosophy, and Literature around 1800}, p. 62; and in Chakravorty Gayatri Spivak’s \textit{Critique of Post-Colonial Reason: Toward a History of the Vanishing Present}, p. 29. Both of them miss, I think, that the ideological edifice informing organization here rests equally as much on sexual sameness as on difference.}

The distinction between extrinsic purposiveness and intrinsic purposiveness demarcates how the two different principles of stratification relate to each other. It also shows how incongruently epigenesis organized these in relation to sexed bodies. The defining characteristic of extrinsic purposiveness is that the material aggregates referred to by the term are organized as conglomerates of materiality different to one another. As extrinsically connected, males and female relate to each other as two mathematically distinct \textit{quantum discretum}, that is, as two separate bodies who share in that they are purposively designed to cater for the reproduction of their species. As intrinsically connected, however, the two sexes also belong to the same body. Two sexed reproduction was not a self-evident fact for Kant. The problem, he thought, was that this form of reproductive organization counter-intuited the naturalist’s “stock formula”: “[Nature] does nothing in vain”.\footnote{Kant, \textit{Kritik der Urteilskraft}, p. AA:V:210.} “Organic creatures have not just a life”, he argues in \textit{Opus Postumum}, “but also a vital feeling which is eroded [aufreibt] through intercourse (and, in insects, through exhaustion). Remarkable that no organic being procreates without two sexes.”\footnote{Kant, \textit{Opus Postumum}, p. AA:XXII:495.}

So, why did such a thing as two sexes even exist? Kant returned to the problem throughout the length of his career. But he did never come up with a satisfactory answer. This is what he
wrote to Friedrich Schiller (1759-1805) regarding Wilhelm von Humboldt’s (1769-1835) newly published article on the matter.

The paper on sexual differences in organic matter /.../ is impossible for me to decipher, even though the author seems to be an intelligent fellow. /.../ To be sure, we sometimes find something like that running through our heads, without knowing what to make of it. The organization of nature has always struck me as a kind of chasm of thought [ein Abgrund des Denkens]; I mean, the idea that fertilization, in both realms of nature, always need two sexes in order for the species to be propagated.186

Kant read Humboldt’s paper and what he found there simply did not make sense. But instead of revising his theory in accordance with the faults he may found in it, Kant settled for another approach regarding the “mystery” of fertilization: providence. “After all, we don’t want to believe that providence has chosen this arrangement, almost playfully, for the sake of variety. On the contrary, we have reason to believe that propagation is not possible in any other way.”187

In light of his theory about extrinsic purposiveness, Kant’s conclusion flies in the face of sex difference. After postulating that providence had, even though human understanding could not grasp it, chosen wisely when arranging organic beings into two sexes, he (mis)quotes John Milton’s *Paradise Lost* (1667): “This [‘indecipherability’ of two sexed reproduction] opens up the prospect of what lies beyond the field of vision, out of which, however, we can unfortunately make nothing, as little as out of what Milton’s angel told Adam about the creation: ‘Male light of distant suns mixes itself with female, for purposes unknown.’”188 Kant bafflement regarding organization refers to one of the three characteristics he thinks separates living being from other material aggregates: their capacity to reproduce its own species. Kant’s paradigmatic example of how this works is the generation of trees:

[A] tree generates another tree in accordance with a known natural law. However, the tree that it generates is of the same specie; and so it generates itself as the species is concerned, in which it, on one

188 Kant, *Briefwechsel 1795*, p. AA:XII:11. Kant’s interpretation of *Paradise Lost* is not exactly philologically astute. This is what Milton writes:

and other suns perhaps
With their attendant moons thou wilt descry
Communicating male and female light,
Which two great sexes animate the world,
Stored in each orb perhaps with some that live.

Kant’s signature style of opaquely inaccessible prose is obscure. An organized being, he claims, reproduces its species. But no male or female can in isolation bring forth an offspring on his or her own. It is only the “pair” that “amounts to an organizing whole even if not to an organized whole in a single body”. This is what intrinsic purposiveness means: that a male-female pair actually constitutes, in terms of organization, one organic body, not two. What hid itself beyond “the field of vision” was the more rationally acceptable body able to hermaphroditically give birth to its own kind.

One important implication follows from the indeterminacy of the extrinsic/intrinsic orderliness of bodies. Whereas the parents will be separate parts of the organized being, their offspring, being the reproductive outcome of the whole, will not, as Paul Guyer has noted, be of one sex or another. Rather than being a male or a female, the child develops from the initial amorphous embryological mass, reach for (but always fall short of) the transcendental idea of the human species: an autonomous being capable of being its own cause and effect, the hallmark of Kantian manliness and maturity. The implications of reproductive organization explain why the two parameters of homo- and heterosocial relationality inevitably run contrary to each other. According to the doctrine of Naturbeschreibung, the two sexes will be read as mathematically distinct in an atemporal and static way. Their offspring, however, will adhere to the dynamic and historical process of stratification underlying Naturgeschichte. Reproduction, Kant claims, is the “interaction of two specifically different substances intimately acting upon each other and striving for unity, where this union brings about a third entity that has properties which can only be produced by the union by two heterogeneous elements.” But, as I have indicated, though this third entity will resemble its producers, it does not grow according to the same order of differentiation as its genitors; for

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189 Paul Guyer frames this brilliantly in “Organism and the Unity of Science” in Kant’s System of Nature and Freedom: Selected Essays, Oxford University Press (Oxford, 2005): “In the case of reproduction – the most opaque of Kant’s examples – the idea seems to be that instead of one or two antecedent combinations of parts (the parents) producing a subsequent new combination of parts (the offspring) – a process that could be explained mechanically – reproduction actually involves a whole, namely the species (p. 92).” The paradox of Kant’s understanding of reproduction is that the offspring born from coition is qualitatively different from those producing the birth. The challenge here is, obviously, to think these two modes of cognition at the same time, a challenge that, I would argue, cannot but come to the conclusion that Kant’s view on sex is fundamentally incomprehensible. If every birth produces the organic-unity-of-humanity-in-the-making, where do the sex-specific beings needed to initiate this making come from?

190 Susan Meld Shell offers a good reading of hermaphroditic ‘self-birthing’ and Kant’s notion of freedom in The Embodiment of Reason: Kant on Spirit, Generation, and Community, p. 294.
the former relation is “called mathematical (of enlargement), but the third would be dynamic (of production); whereby an entirely new thing emerges”.  

Instead of assuming, with Kimmel, that the human body interacts socially through homo- and heterorelationality, epigenesis shows that maleness and manliness refers to different bodies operating under different physical laws. The parents are qualitatively not of the same kind as their offspring, yet, since Kant uses both principles to organize political life, any human will be simultaneously stratified at odds with him- or herself. So, to take the coherency of the biological body as a point of departure in a gender analysis of Kant would be to preclude that no such thing exists in the domain of epigenetic organization. This is the answer, I argue, to the question regarding the absence of epigenesis in gender historical research: analytical frameworks ill-equipped to handle conflicts within, about, and of physiology would be inevitably at loss as to how epigenetic structuration organizes bodies. The incipiency of modern sex does not, in Kant’s case, mark the emergence of sex difference, but neither a return to an older Aristotelian isomorphy. Kant’s philosophy shows that the sexed body became a problem, not an identity.

Astonished

So far we have seen how the cluster of phrases employed in the hybrid proof, the passage on epigenesis quoted in the introduction, implied two conflicting presuppositions regarding the human body. It is now time to back-track the analysis to the point made in the section initiating my reading: the importance of the hypothetical indication. In the following portion of the text, I explain how Kant’s hesitancy regarding epigenesis – how it could only be “assumed”, or that it “has more grounds for it” – relates to the ideological and physiological paradox of difference and sameness, sex continuity and discontinuity travelling under its name. I do this by finally integrating the theme I started this paper with: astonishment, speechlessness, and re-discovery. Before delving into this, however, we need to make a quick detour across Der Streit den Fakultäten (1798) and acquaint ourselves with a character called Postellus.

Kant with Postellus

The passage below, from *Der Streit den Fakultäten*, offers an illustrative meta-commentary to the seemingly irreconcilable conflict of difference/sameness Kant traps himself in. In it, Kant compares his own view on sexed bodies with that of Postellus’, an “enthusiast”. Observe how close yet disapproving Kant’s argument gets.

The enthusiasm of Postellus, a sixteenth-century Venetian, on this point is of a highly original kind and serves as an excellent example of the sort of aberration, and indeed logical raving people can fall into if they transform the perceptible rendering of a pure idea of reason into the representation of an object of the senses. For if we understand by that idea not humanity in the abstract but a real human being, this person must be of one or the other sex.192

Kant clearly dismisses Postellus’ “enthusiasm”. But there are also some affinities between them. Let’s look at them first. The initial question this passage raises is obvious: was Kant himself suffering from “logical raving”? Considering the sexual aberrations of his own position, the temptation to answer affirmatively is considerable. Like the enthusiast from Venice, he also believes that the “pure idea of reason” of “humanity in the abstract” both can and must be materialized in “a real human being”, despite that he or she “must be of one sex or the other”. That was the second, embryogenetical meaning of Kant’s epigenesis.

But Kant does not agree with Postellus. Why? What one has to bear in mind regarding the example above is that it forbids only the “transforming of /…/ a pure idea of reason into the representation of an object of the senses”, not the idea itself. The reproach aims at the most basic move of critical philosophy: to turn constitutive and theoretically rigid principles into regulative ones when reason’s ideas begins to entangle itself in dialectical illusions. In other words, Kant does exactly what Postellus does but with a certain proviso. The difference between them is that he refuses to call his “pure ideas of reason” cognitable objects.

The organization of reproduction assigns men and women two incommensurable functions. As sex-specific beings they constitute parts of the organic body, yet they interact as degrees of the same when set within the domain of Bildung, or embryological development. To prevent this from becoming a logical aberration like Postellus’, the naturalist must “put the goal we are approaching so far off, [and] bring this goal to the highest degree of agreement with itself through systematic unity.” “But”, Kant warns, “if one misunderstands them and takes them to be constitutive principles of transcendent cognition, then they produce a dazzling but...”

deceptive illusion, persuasion and imaginary knowledge, and thus also external contradictions and controversies."^{193}

The theme invoked above should be familiar from the section on hybrid indications. Epigenesis structures human bodies in sex specificity and, like in Postellus case, sex sameness. But the reflection on nature executed in the theory’s name is not an apodictic use of reason; it is merely “problematical” and “hypothesical”. Thus Kant can prevent his theory from, when claiming conflicting things about bodies, suffering aberrative inconsistency. Since it is not, like Comte de Buffon’s and Maupertuis’, a constitutive cognition claiming absolute certainty, the indication of epigenesis safe-guards against logical deterioration by forfeiting knowledge of the thing in it self. “The resolution of an antinomy” Kant argues, amounts merely to the possibility that two apparently conflicting propositions do not in fact contradict each other, but can be compatible with each other, even though the explanation of the possibility of their concept exceeds our faculty of cognition."^{194}

Kant never wrote a resolution of the antinomy of sex difference. He did, however, think that “the great advantage that the defender of epigenesis” has over his adversaries was that he “with the least possible appeal to the super-sensible, leaves everything that follows from the first beginning to nature (without, however, determining anything about the first beginning on which physics always fonder, not matter what hint of causes it tries)”.^{195} He did also believe that the formative drive catering for embryological virtualization was only a *qualitas occulta*. The term, he says, “is a problematical idea which exceeds the limits [die Grenzen] of possible cognition.”^{196} It was like Newton’s gravity: it was there, one had to presume; but one could only know it from its effects. The ensouling drive was not a theoretically rigid concept, but precisely the kind of regulative, heuristic principle Kant contrasts determinative ones with.

Yet for all Kant’s provisos, it was the experience of break-down and Bewunderung that triggered the most salient effects. In the introductory section I showed how Kant was astonished by the event of reproduction. The feeling of absolute cognitive loss was so complete that the faculties of understanding hurled itself into a state of “mental shock” at the thought, a cognitive jolt which “produce[d] a doubt as to whether one has seen or judged correctly.” The painful experience of sublimity produced a feeling of displeasure in cognitive efforts to understand reproduction. But the “shock” accompanying it would eventually reside

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and give way to a more pleasurable “admiration”.\textsuperscript{197} The moment of “surprise” would thereafter allow the naturalist “to suspect something lying beyond those sensible representations, in which, although unknown to us, the ultimate ground of that accord could be found.”\textsuperscript{198} The insight that organic beings pointed beyond appearances would then not be a hinder for science. “He who thoughtfully and with a scrutinizing eye pursues the order of nature” will be confronted with a “wisdom he did not expect: an admiration from which he cannot tear himself away (he cannot be surprised enough).”\textsuperscript{199} The experience, Kant informs his reader, was “a kind of sacred awe at seeing the abyss of the supersensible opening before one’s feet.”\textsuperscript{200}

While serving conflicting ideological purposes, then, the theory of epigenesis also had the peculiarity of not saying anything at all. “The system of epigenesis”, Kant writes, “does not explain the origin of the human body, but says far more that we don’t know a thing about it”.\textsuperscript{201} This is why Kant only proves epigenesis by way of the second-handedly communicated hybrid indication. To assertorically subscribe to the thesis would be to entangle oneself in insoluble conflicts of both ideological and physiological kinds. By “exceed[ing] our faculty of cognition”, the explanation of the antinomic resolution thwarts human understanding into “deceptive illusion, persuasion and imaginary knowledge, and thus also external contradictions and controversies”, logical ravings that can only be kept at bay with the soothing insight that we are only dealing with appearances, not things in themselves.

\textsuperscript{197} Kant, \textit{Anthropologie in der pragmatischer Hinsicht}, p. AA:VII:261.

\textsuperscript{198} Ibid., p. AA:VII:261.

\textsuperscript{199} Ibid., p. AA:VII:261.

\textsuperscript{200} Ibid., p. AA:VII:261.

\textsuperscript{201} Kant, \textit{Vorlesungen über Metaphysik}, p. AA:XXIX:761. This sentence has caused some stir among Kant-scholars. Some, like John H. Zammito, argue that Kant distances himself from the theory with it. Others however, like Marcel Quarfood, situate it in approximately the same way I do, that is, as an argument for epigenesis. See Zammito’s “Kant’s Persistent Ambivalence toward Epigenesis, 1764-90” in Philippe Huneman (ed.) \textit{NAKS Studies in Philosophy, Volume 8: Understanding Purpose: Kant and the Philosophy of Biology} (2007), p. 52; and “Kant’s Early Views on Epigenesis: The Role of Maupertuis” in Justin E. H. Smith (ed.) \textit{The Problem of Animal Generation in Early Modern Philosophy} (2006), p. 374; and Quarfood’s \textit{Transcendental Idealism and the Organism: Essays on Kant}, p. 99.
Eloquent Speechlessness: Agency, Masculinity, and Lies

Si tacuisset, philosophus manisessst
[He might have been taken for a philosopher, had he remained silent].

So far we have seen how the four phrases of the passage quoted in “Problems and Disposition” has proven two conflicting claims regarding the human body and dispelled the antinomy between them by forfeiting knowledge of things in themselves. Human cognition can only grasp appearances by way of indications, so the clash between homo- and heterosocial structuration was therefore stored and defused in the safe-house of the supersensible, the depository of ideological and physiological inconveniences. One step remains, however. In the introductory section of this paper, I claimed that a reading of the weirdness of Kant’s epigenesis would say something concerning the relation between political identity and political agency. Thus far we have covered the first of these. It is now time to for the second.

An analysis viewing the sexed body as common-sensically given will be blind to the fact that physiological coherence in Kant presupposes the super-sensible, a hole in the text storing what can not be submitted to the enunciative exposure of reading. Epigenesis must in a sense retain an area excused from textuality, a blank spot so to speak, in order for it to be readable at all – a small yet crucial piece of unreadability guaranteeing the readability of the whole. To install this textual void, Kant asks his reader to not interpret him as an enthusiast like Postellus. But his accompanying recourse to a sphere beyond understanding’s natural habitat – the “mystery”, the “wonder” – comes at a prize.

On the one hand, Kant urged his reader to remain silent as to the true nature of living beings. “If I see insightful men in conflict with one another over the characteristics of human beings, animals or plants”, he writes later in the already touched upon appendix to the *Kritik der reinen Vernunft*, “then I need only consider the constitution of the object in order to comprehend that it lies too deeply hidden for either of them to be able to speak from an insight into the nature of the object.”

The maxims of manifoldness and the maxim of unity, he continues, “can of course be united, but as long as they are held to objective insights, they occasion not only conflict [Streit] but also hindrances that delay the discovery of the truth,

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202 Kant’s friend and popularizer, Johann Gottfried Carl Christian Kiesewetter (1766-1819), quoted this Boethian phrase to Kant apropos Wilhelm von Humboldt’s failure to explain critical philosophy to the Parisian scene during a lecture at Institut National. Humboldt, Kiesewetter said, “/…/ rather lacked the proper equipment for the job”. See *Briefwechsel 1798*, p. AA:XII:266.

until a means is found of uniting the disputed interests and satisfying reason about them.”

The strategy Kant found that could solve this was to enact the astonished Neuling in der Welt, a mode of cognition suppressing the need to talk about everything by inducing a modest silence into the student of nature. “The present world discloses to us such an immeasurable showplace”, he continues his description of this experience, “that in accordance with even the knowledge about it that our weak understanding can acquire, all speech concerning so many and such unfathomable wonders must lose its power to express [my italics].”

Yet, on the other hand, despite Kant’s lack of proper means – a voice – to adequately verbalize his experience of nature’s “wonders”, the act of pointing that loss out is far from mute. The “natural and unavoidable dialectic of pure reason /…/ will not cease to play tricks with reason”, Kant argues, so the naturalist will have to submit himself to a virtually infinite regime of “correction” (Berichtigung), an endlessly repetitive call for speechlessness whose defining silence roars of the deafening sound of transcendental idealism. Kant spoke of his expressive failure as “a speechless, but nonetheless eloquent, astonishment.” The striking thing about Kant is the he could ‘eloquently’ not stop talking about the necessity of not talking.

An “astonishment” bereft of its “power to express” yet bestowed with a locutionary duty: what kind of activity is Kant engaging in here? Let me offer two remarks regarding this peculiar phrase in light of the theory offered by the proponents of Critical studies on Men and Masculinities. The first concerns R.W. Connell’s widely circulated notion of masculinity presented earlier in “Theoretical Positions”.

Let’s repeat: Critical studies on Men and Masculinities depart from the idea that, in order to understand gender relations involving masculinity, researchers should study men, in Kimmel’s words, “as men”. According to R.W. Connell, the leading theorist in the field, “[m]asculinity, understood as a configuration of gender practice /…/ is necessarily a social construction. Masculinity refers to males bodies /…/ but is not determined by male biology.” The definition presupposes a self-evident link between masculinity as practice and male bodies as identity. The equation proceeds by conflating the two parameters in the sense that the former acts in the name of the latter. In Kant’s case, this relation turns inside out.

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205 Ibid., p. AA: A622/B650.
The eloquent voice of speechlessness emanating from the site named Kant will close the “gap” (Lücke) opened by the antinomy of bodily structuration because it is only by way of verbal abstention and modest humility that epigenetic bodies can be rendered complete.  

Yet the place managing the flow of voice can not be reduced to a specific identity. Susan Shell Meld has made an interesting remark about Kant’s writing that may help us out here. “Kant’s Tantalus-like efforts to secure gap-free systemicity [sic]”, she writes, “did also owe something to his growing sense of inner fragmentation – a loss of that spiritual self-presence, or ability through an idea to hold everything ‘as a whole’ before the mind, on which he prided himself and which was for Kant, the characteristic mark of the philosopher. Kant’s claim that he compensated for this loss ‘by writing’ is perhaps particularly significant in this regard, given the dazzling profusion of unfinished text Kant left behind.”

Meld’s analysis of critical philosophy’s motivational grounds relies heavily on biographical sources, but her claim highlights one crucial point. Thus far my analysis has suggested that the bodily identity of which Connell speak must be re-configured as incongruent and reliant upon extra-textuality (the supersensible). When read in light of Meld’s claim that Kant’s writing originates from precisely the need to correct “fragmentation”, my thesis shows that, insofar as writing seeks to ‘close the gap’, sexed identity does not serve as the point of departure for activity or agency. On the contrary: if my reading has any merit it is because Kant’s eloquent voice of speechlessness resounds from the failure of embodiment, from the felt need to suture the gap between extrinsic difference and intrinsic sameness, Naturbeschreibung and Naturgeschichte, opened by epigenetic structuration. Contrary to Connell’s framework, my reading makes evident that Kant’s masculine gender practice, identified as the founding moment of modern masculinity by Connell herself, precedes the identity it paradoxically acts from because a coherent bodily identity is not the starting point of it but the goal towards which it strives.

The second point about Kant’s astonishment I wish to point out concern the dangers pertaining to a view on bodies as common-sensically closed sites serving unproblematically as platforms for political agency. Kant shows that Connell’s naïve conflation of identity and

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209 In a letter to Kiesewetter Kant describes his motive for writing yet another piece of critical philosophy – what the after world knows as Opus Postumum – as a need to fill “a gap”. This was also his motive for writing the second and third critique. See, Kant, Briefwechsel 1798, p. AA.XII:258.


211 Shell Meld asks her readers to overstep “the usual boundaries between textual and biographical analysis (The Embodiment of Reason: Kant on Spirit, Generation, and Community, p. 2).”

practice precludes that agency (or life) springs from identity’s break-down. By claiming this however, I do not subscribe to an ethics arguing for a ‘subversion of identity’. In Kant’s case, several reasons exist why we may want to strategically call what he is doing an expression of this or that social category.213 But in making this move we would not only supplement something that does not exist outside of critical philosophy – an epigenetic, coherent human body – but also restore to Kant what he risks when ‘correcting’ his fragmentally disjointed experience of embodiment.

As a mode of communication, the astonishment of eloquent speechless is ambiguous. Human sociability, Kant claims, originates from an “urge for communication”.214 Although this need awakens humanity’s rationality, it tends to degenerate into mere noisiness as society becomes increasingly civilized. But on what side does Kant reside? The passage below describes the latter process.

While as yet alone, man must have been moved by the urge for communication to make his existence known to other living beings, particularly to such as utter sounds. These sounds he could imitate, and they could later serve as names. A similar effect of the above urge may be observed even now. Children and thoughtless persons are apt to disturb the thinking part of the community by rattling, shouting, whistling, singing and other kinds of noisy entertainments (often also by religious devotions of such a nature). For I see no other motive for this than that they want to make their existence known far and wide.215

A critical assessment of Kant may read this passage in two ways. On the one hand, it could place critical philosophy’s ideal outside the process it describes, but claim that Kant’s unwavering insistence on speechlessness, the “tone of moderation”216 signalling maturity, argues so passionately that his eloquent talk threatens to place him among the very group he disenfranchises – the unmanly, womanly rabble childishly indulging in ‘shouting and whistling’. This reading however, would have to argue for why critical philosophy’s eloquence does not differ from other activities “want[ing] to make their existence known far and wide”, a claim that would ultimately have to rely on extra-textual presuppositions. But the interesting quirk here is not that Kant fails to properly distance himself from vulgarity by claiming one thing and falling into his own trap by doing another. The problem is that Kant defuses the danger of that risk by becoming even more infantile than those he seeks to disparage.

216 On Kant’s “tone of moderation”, see Kritik der reinen Vernunft, p. AA:A624/B652.
Consider that Kant defines women’s locutionary habits, their “domestic warfare”, as a “loquacity and eloquence of full affect [affektvolle beredtheit]”. And now recall how Kant’s *Verwunderung* balances between the epistemologically modest loss of the “power to express”, a Sprachlosigkeit, and the expressivity demanded by the locutionary duty inherent in Beredtheit. The latter mode of locution clearly has a more civilized tone; its modesty stands in stark contrast to the unrestrained and affective warfare of women. But by committing to this mode of locutionary differentiation, Kant reverses the roles. Whereas women’s eloquence (speech) harmonizes with the affect carried out in its name (sound), Kant’s does not. His loquacious eloquence is…sprachloses – without neither words nor sound. Eloquent speechlessness is a form of talkativity without the necessary ingredient: the actual talk. The prize Kant pays for successfully separating himself from unmanly/womanly noisiness is that the two parameters of his phrase – the content urging the reader to be silent and the form expressing this prohibition eloquently – annuls each other in a reciprocal betrayal structurally homologous to the lie: “To have one thing shut up in the heart and another ready on the tongue.” This is how Kant defines a lie.

A human being who does not himself believe what he tells another has even less worth than if he were a mere thing. /…/ But communication of one’s thoughts to someone through words that yet (intentionally) contain the contrary of what the speaker thinks on the subject [my italics] is an end that is directly opposed capacity to communicate his thoughts, and is thus a renunciation by the speaker of his personality, and such a speaker is a mere deceptive appearance of a human being, not a human being himself.

Kant did not, of course, tell a lie when insisting upon speechlessness as if he was telling “another” something he “does not himself believe”. Nor is his eloquent speechlessness a lie in the ordinary intersubjective sense described above. The phrase has a lying structure because it is a form of communication “through words [eloquence] that contain the contrary of what the speaker thinks on the subject [speechlessness]”. Kant’s gender practice, his writing, does not only emerge from the failure of bio-political categories to render themselves complete. As a practice, masculinity transforms its practitioner into a “speaking machine”, an entity disqualifying itself from philosophy by writing philosophy. Kant, to paraphrase the quote introducing this section, would have been taken for a philosopher had he remained silent.

Words contaminate the idea they express: that’s how I would characterize the paradox of Kant’s gender practice. This split(ting) of and in activity would remain hidden if viewed from

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the perspective of the pre-formed link between identity and practice Connell and Kimmel offers. A reading from their point of view would defuse Kant’s self-cancellation in the sense that the male body would safe-guard identity’s integrity otherwise risked in gendered practice. Such a reading would believe with/in Kant, humanize him though his masculinity becomes a “renunciation by the speaker of his personality, and such a speaker is a mere deceptive appearance of a human being, not a human being himself” by normalizing the carnivalesque displacement he undergoes in the process of managing the volatile line demarcating eloquence, speechlessness, and vulgarity”219. Despite and because of its gender critical pretence such a reading would be more Kantian than Kant himself.

Conclusions

The “Neuling in der Welt” unfamiliarizes the commonality of his or her experience of life. Astonished by everything and acquainted with nothing, he or she sees the extra-ordinariness in things and events usually taken for granted. Kant experienced this when reflecting upon organized beings, reproduction, and epigenesis, and urged his reader to pursue a similar sentiment of their own. As readers of the paradoxes of that experience, we should now be alertly aware of the necessity of becoming newcomers ourselves. My strategy in this paper has been to interrogate, following Lorraine Daston’s advice, the weirdness of epigenesis by mimicking my object’s own experience of estrangement. I made two claims in conjunction with my plan of action. First, I wanted to see if, in the words of John H. Zammito, the instability of current research on epigenesis could be traced to an incoherency within the concept itself. Secondly, I wanted to see if, when counter-posed to earlier research on gender politics, epigenesis would change our understanding of the political anatomy emerging in the late eighteenth century. The essay has traversed large sectors of Kant’s thought, and we should now be in position to assess the results my reading has generated. Is Kant’s theory of epigenesis weird?

The answer to the question is disjunctive. Yes, I believe it is; but only from a presentist’s perspective. Kant’s theory of epigenesis, and the experience of astonishment accompanying it, is a highly complex event. In the first section of analysis, “Hybrid Indications”, we saw how

hybrid physiology proved epigenesis correct by making manifest nature’s susceptibility to failure, or unhealth. Against the claim of John H. Zammito’s reading, this enabled my analysis to point out that, as an exception preceding the rule it breaks, the hybrid made it possible for Kant to cognize hypothetically a nature in itself unknowable. This was my first argument why epigenesis is an unstable concept from a present day viewpoint.

The second argument I raised against scholars doing research on Kant’s epigenesis concerned the contradiction between Naturbeschreibung and Naturgeschichte. In “Two-Fold Interest of Reason”, my analysis elicited how reason’s dual interest in reflections upon nature employed epigenesis in two contradictory ways. As a theory designed to cater for reason’s urge to harmonize incongruent principles of organization – mathesis and dynamism, difference and sameness, specification and homogeneity – epigenesis was always at odds with itself. This peculiarity of Kant’s approach prompted him to transform his theory into a version of its discursive other, preformationism. But, contrary to the camp arguing that Kant therefore rejected epigenesis, I showed that “generic preformation” was not a repudiation of immanent models of physiology. A proof of this, I claimed, is that the concept of predispositions, a preformationist term, was used to argue for, by way of the hybrid indication, an epigenetic conception of nature. I also argued against the thesis defended by Marcel Quarfood and Peter McLaughlin that Kant was an epigeneticist despite his use of preformationist terminology. My claim was that Kant’s theory on animal generation was both. Epigenesis was inevitably in conflict with itself, a paradox alleviated only by the fact that whatever Kant said regarding organized beings, it was only hypotheses. It is in this sense epigenesis is unstable, but perfectly coherent from Kant’s point of view.

Epigenesis is also a weird concept because it radically alters our understanding of how the political anatomy of sexed embodiment operated during the late eighteenth century. This was the second claim I made in the beginning of this paper. My reading, in “Epigenesis and Ideology”, generated three results. I first showed that, contrary to the thesis of Thomas Laqueur and Londa Schiebinger, the ideological formation of sex difference did not emerge as a result of a supposed decline of “antique models of sexuality”. In Kant’s case, sex difference and politics of incommensurability was introduced as an effect of a retrieval of Antique authorities. But it was not only to argue that men and women were fundamentally different to one another that Kant employed epigenesis.

The second find of my analysis showed that the notion of embryological development, the second principle of epigenesis, generated human bodies along a “ladder of organization”, a
mode of stratification organizing bodies isomorphically. The two parameters of epigenetic structuration – maleness/femaleness, and manliness/unmanliness (womanliness) – were then examined in light of the distinction of extrinsic and intrinsic purposiveness. The result showed that the notion of an organized being inevitably posited the two clauses, “the mixture of both sexes” and “similarities of variation”, in a self-defeating relation to each other.

In the final section I transposed the antinomy of bodily coherence to a discussion regarding Kant’s masculinity. By examining the peculiar phrase, “an astonishment of eloquent speechlessness”, I highlighted how Kant’s writing emerged from the experience of bodily incoherence. In light of R.W. Connell’s theory about men’s gender practice, I also showed how a reading presupposing a stable sexed body would preclude how Kant’s masculinity entangles itself in a structure of self-cancellation homologues to the lie.

A reading sensitive to weirdness shows that gendered identity operates in ways far more complex than scholars have hitherto allowed it to. It also shows that social categories collides with each other, but that the conflict between them may also be the very cause setting gender political structures in motion. One questions remains to be asked, however. I have based my entire analysis on the claim that our relation to Kant may be based more on alterity and inexplicability than normally supposed. But doesn’t the weirdness of epigenesis resemble to a large extent today’s lines of contestation in and of geopolitical gender struggles? Perhaps the weirdness Kant invites us to experience is not so much a weirdness of the past, but an alterity in ourselves to ourselves, inexplicably.

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