



Kant on epigenesis, monogenesis and human nature: The biological premises of anthropology

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Abstract

The aim of this paper is to show that for Kant, a combination of epigenesis and monogenesis is the condition of possibility of anthropology as he conceives of it and that moreover, this has crucial implications for the biological dimension of his account of human nature. More precisely, I begin by arguing that Kant's conception of mankind as a natural species is based on two premises: firstly the biological unity of the human species (monogenesis of the human races); and secondly the existence of 'seeds' which may or may not develop depending on the environment (epigenesis of human natural predispositions). I then turn to Kant's account of man's natural predispositions and show that far from being limited to the issue of races, it encompasses unexpected human features such as gender, temperaments and nations. These predispositions, I argue, are means to the realisation of Nature's overall purpose for the human species. This allows me to conclude that man's biological determinism leads to the species' preservation, cultivation and civilisation.

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A crucial condition of anthropology seems to be that of the unity of mankind despite its apparent diversity. For, how can we think that white human beings in Europe and black human beings in Africa are in some sense the same when observation makes us believe that 'man' changes when we change continent?¹ Without a theory about the common origin of humanity, it seems impossible to ground general claims about human nature.

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¹ For instance, Blumenbach writes that 'on the first discovery of the Ethiopians, or the beardless inhabitants of America, it was much easier to pronounce them different species than to inquire into the structure of the human body' (Blumenbach, 1776, p. 98, in Lenoir, 1980, p. 81).

A lot of important work has been done to elucidate Kant's philosophy of biology and in particular his theory of generation and races.² The aim of this paper is somewhat different: it sets out to show that for Kant, a combination of epigenesis and monogenesis is the condition of possibility of the empirical universality of anthropology as he conceives of it and that moreover, this has crucial implications for the biological dimension of his account of human nature.³ More precisely, I shall argue that Kant's conception of mankind as a natural species is based on two premises: firstly the biological unity of the human species (monogenesis of the human races); and secondly the existence of 'seeds' which may or may not develop depending on the environment (epigenesis of human natural predispositions). The former, monogenesis, allows us to conceive of men as coming from a single biological origin and thus as being in some fundamental sense the same, biologically and psychologically. The latter, epigenesis, secures the production of natural variations within the human species through a theory according to which races are sub-categories of the same species. In this sense, I will suggest that one should understand Kant's endorsement of epigenesis and monogenesis as a philosophical premise necessary to his conception of human nature as well as a claim justified by a number of scientific theories available to him.⁴

To support this claim, I will begin by examining the specific features of Kant's position on the question of organic generation, a position I will describe as a middle ground between epigenesis and preformation (what I will call an 'epigenesis of natural predispositions'). I will then turn to Kant's account of the human races and show that it attributes racial differences to the possession of natural predispositions which are teleologically oriented and which may or may not develop depending on the environment. By doing so, I will bring to light the crucial connections between Kant's account of human races and his account of organic generation. The final section will focus on the teleological dimension of man's natural predispositions and attempt to identify Nature's purposes for the human species through a study of Kant's 'Anthropological characterisation'.⁵ I will argue that far from being limited to the issue of races, Kant's biological conception of human nature encompasses unexpected human features such as gender, temperaments and nations.

1. The generation of organisms: epigenesis vs. preformation

To understand the specific features of Kant's position regarding the issue of organic generation, it is helpful to be aware of the scientific context of the time. A passage from

² See the References.

³ As Kant writes in the *Critique of judgment*, 'Here . . . the universality is only comparative, so that the rules are only *general* (as all empirical rules are), not *universal*' (Kant, 1987 [1790], p. 56 [5:213]), (references in square brackets are to the original German Akademie edition in Kant, 1902–). In this sense, I shall argue that grounding the empirical universality of anthropology on a combination of epigenesis and monogenesis allows him to formulate anthropological generalisations that apply to all human beings.

⁴ This claim goes against Ferry who writes that 'the issue (fundamental for ethics) of the diversity or the unity of the human species is not, for Kant, a scientific one' (Ferry, 1985, p. 559; my translation). As I will show in this paper, Kant was well aware of the scientific theories available to him, and he defended his support for epigenesis and monogenesis by referring to the scientific theories of Buffon and Girtanner for the latter and Blumenbach for the former.

⁵ Regrettably, Kant, and, following him, his translators, are inconsistent in their capitalisation of 'nature' in the context of discussions of Nature's intentions. I have chosen to capitalise it throughout the paper, not because I intend to mean that Kant reifies it, but rather simply in order to preserve consistency.

Blumenbach's treatise *On the formative drive* summarises the debates on generation by delineating two rival theories:

It is either supposed that the prepared, but at the same time unorganized rudiments of the foetus, first begins to be gradually organized when it arrives at its place of destination at a due time, and under the necessary circumstances. This is the doctrine of Epigenesis; Or, we deny every sort of generation, and believe that the germ of every animal, and every plant that ever has lived and ever will live, were all created at one and the same time, namely, at the beginning of the world; and that all that is necessary is, that one generation should be developed after the other. Such is the celebrated theory of evolution. (Blumenbach, 1792, p. 5, in Jardine, 1991, p. 23)

Sloan's detailed categorisation of these rival theories can help further our understanding of these debates.⁶ On the one hand, theories of preformation (what Blumenbach calls 'evolution') generally take two forms. Firstly, the classic version of strong individual preformation envisions it as a preformation of the entire embryo encapsulated, like Russian dolls, within the egg or the sperm. For this theory, organisms are not truly generated by causes residing in their parental ancestors in historical time, but have all been created in their essential properties by God at the creation of the world. Secondly, there is the weaker Haller–Bonnet theory of the pre-existence of primordial germs that develop with the addition of structuring dispositions into complete organisms on the occasion of fertilisation. What distinguishes the latter from strong individual preformation is that the preformation is limited to the primordial of the embryo, pre-existing as germs that unfold in time.

On the other hand, theories of epigenesis generally take two forms. Firstly, there is the mechanistic version of epigenetic development, formulated by Maupertuis and Buffon, which posits the formation of the embryo from atomic matter under the action of Newtonian microforces. Buffon's theory relies on organic molecules which form the matter of all living beings and are organized into specific structures by the action of the *moule intérieur*. The interaction of the mould and the molecule is, for Buffon, sufficient to account for the organization of the embryo, its subsequent growth, its nutrition and the perpetuation of the species by means of the self-replicating powers of the mould. Secondly, there is the Wolffian theory according to which the embryo develops from an originally structureless matter by the action of an organizing *vis essentialis*.⁷

On the basis of this classification, I believe that Kant's position is best labelled as a middle ground between preformation and epigenesis, by which I mean that it has both an epigenetic and a preformationist component.⁸ To have a better understanding of this claim, I will examine successively each component, beginning with epigenesis. In doing so, I will focus for the most part on Kant's theory as it appears in the short period leading to the publication of the *Critique of judgment* (1790), and will not discuss the historical shifts in Kant's thinking on these issues.⁹

⁶ Sloan (2002), p. 252.

⁷ For detailed accounts of these theories, see Roe (1981), Gasking (1967), Jardine (1991), Zammito (1992, 2003), and Sloan (1979, 2002). For an account of the origin of the word 'epigenesis', see Zammito (2003), pp. 86–87, Sloan (2002), p. 233, and Zöller (1988), p. 81.

⁸ It is in this sense unique, since as Sloan notes, most forms of preformationist theories were opposed to the thesis of epigenesis (Sloan, 2002, p. 233).

⁹ For a treatment of these issues, see Lagier (2004), Zammito (2002), Sloan (2002), and Lenoir (1982).

Two essential features of epigenesis are particularly attractive for Kant. Firstly, it does not try to account for the possibility of an original form of organization.¹⁰

No one has done more by way of proving this theory of epigenesis than Privy Councillor *Blumenbach*, and by way of establishing correct principles for applying it, which he did in part by avoiding too rash a use of it. Whenever he explains any of these structures physically he starts from organized matter. For he rightly declares it contrary to reason that crude matter on its own should have structured itself originally in terms of mechanical laws, that life could have sprung from the nature of what is lifeless, and that matter could have moulded itself on its own into the form of a self-preserving purposiveness. Yet by appealing to this principle of an original *organization*, a principle that is inscrutable to us, he leaves an indeterminable and yet unmistakable share to natural mechanism. (Kant, 1987 [1790], p. 311 [5:424])

Epigenesis rightly leaves aside the question of nature's beginnings and limits itself to the claim that an organism can only be conceived as the product of another organism, as shown in *Blumenbach's* theory: 'No one could be more totally convinced by something than I am of the mighty abyss which nature has fixed between the living and the lifeless creation, between the organized and the unorganized creatures'.¹¹

Kant's second reason for supporting epigenesis is that it characterises nature not only as something that develops mechanically, but as something that is productive and has a teleological element: 'In considering those things whose origin can be conceived only in terms of a causality of purposes, [epigenesis], at least as far as propagation is concerned, regards nature as itself *producing* them rather than as merely developing them; and so it minimizes appeal to the supernatural, [and] after the first beginning leaves everything to nature'.¹² This notion of natural production, which is crucial in Kant's account of generation, can be better understood through the distinction between 'educt' and 'product'.

Any organic being generated by another of its kind is considered [by the theory of preestablished harmony] to be either the *educt* or the *product* of that other being. The system that considers the generated beings as mere educts is called the system of *individual preformation*, or the theory of *evolution*. The system that considers them as products is called the system of *epigenesis*. (Ibid., p. 309 [5:422–423])

¹⁰ Interestingly, this is also the case in Kant's account of human history. In *Speculative beginning of human history*, Kant refuses to engage in speculations about the beginnings of human history. His refusal is based on the fact that these supposedly scientific conjectures are illegitimate. Thus, he makes the methodological decision to begin his account with 'man as a *fully formed adult*', for 'if one's speculation is not to wander aimlessly, one must make one's beginning something that human reason is utterly incapable of deriving from any previous natural causes' (Kant, 1983 [1786], p. 49 [8:110]).

¹¹ *Blumenbach* (1791), p. 13, in *Zammito* (2003), p. 95. As *Richards* writes, 'This was why [Kant] found *Blumenbach's* principle of the *Bildungstrieb* so attractive—because he interpreted the biologist to be saying that ultimately only organized matter could produce organized matter', against theories which assert a radical spontaneity of matter (*Richards*, 2000, p. 29). See also 'When we ask after the specific point for which Kant actually invoked *Blumenbach*, it was to dismiss what in the *Critique of judgment* he could call a "daring adventure of reason", namely the transformation of the great chain of being from a taxonomy to a phylogeny which had been raised by *Forster*' (*Zammito*, 2003, pp. 93–94).

¹² Kant (1987 [1790]), p. 311 [5:424]; my emphasis.

As Zammito notes, ‘in an educt all the relevant material pre-exists, and only its aggregation is shuffled, whereas in a product, altogether new things emerge, presumably by immanent processes’.¹³ The conception of nature as producing is conveyed by the concept of *Bildungstrieb*, or ‘formative impulse’, which Kant borrows from Blumenbach.¹⁴

The ability of the matter in an organized body to [take on] this organization he [Blumenbach] calls a *formative impulse* [*Bildungstrieb*]. (It is distinguished from the merely mechanical *formative force* that all matter has, [but] stands under the higher guidance and direction, as it were, of that formative force.). (Kant, 1987 [1790], p. 311 [5:424])

Kant approves of Blumenbach’s use of the *Bildungstrieb* because it accounts for the original organization of matter in organisms without resorting to a mechanistic explanation of the origin of organic life. In this sense, the decisive contribution of epigenesis to the debates on organic generation is to acknowledge a primitive organization and accordingly subordinate mechanical principles to teleological principles: ‘Our judging of such products must always be subordinated to a teleological principle’.¹⁵

However, it is crucial to note that Kant’s official support for epigenesis as the only viable theory of organic generation is in fact supplemented with a strong preformationist component. This appears most clearly in his definition of epigenesis as ‘the system of *generic preformation*, since the productive power of the generating beings, and therefore the form of the species, was still preformed *virtualiter* in the intrinsic purposive predispositions imparted in the stock’.¹⁶ Thus, Kant’s endorsement of epigenesis should be understood as being limited by the role assigned to natural predispositions. As Kant writes in his *Review of Herder’s Ideas*:

When the inner organizing cause would be by its nature restricted only to perhaps a certain number and degree of variations in the formation of its creation (according

¹³ Zammito (2003), p. 91.

¹⁴ Kant’s relationship with Blumenbach has been the object of numerous divergent interpretations. For instance, Lenoir argues that the works of the two men were mutually supportive of the same program, a program he calls ‘teleomechanism’ (Lenoir, 1982, p. 24). Sloan holds that it is Blumenbach’s change of mind between 1779 and 1780 from supporting the Haller–Bonnet theory of preformed *Keime* to supporting epigenesis that occasioned Kant’s own change of mind before the composition of the *Critique of judgment* (Sloan, 2002, Sect. 3). Richards, for his part, describes the relationship between Kant and Blumenbach as a ‘common misunderstanding (albeit a rather creative and useful one)’ rather than an agreement (Richards, 2000, p. 12). Zammito no doubt puts forward the least contentious interpretation when he writes that ‘there is clear evidence that Blumenbach assimilated many aspects of Kantianism into his scientific methodology. There is also evidence in the converse direction, that is, Kant’s assimilation of Blumenbach’s scientific methodology into his own exposition of philosophy of science’ (Zammito, 2003, p. 75). The object of this section is not to discuss the details of these debates, but rather to focus on the specific features of Kant’s position on the question of organic generation.

¹⁵ Kant (1987 [1790]), p. 303 [5:417]. See also the title of §80: ‘On the necessary subordination of the principle of mechanism to the teleological principle in explaining a thing [considered] as a natural purpose’. A letter Kant wrote to Blumenbach confirms this point: ‘I have found much instruction in your writings [Blumenbach’s], but the latest of them has a close relationship to the ideas that preoccupy me: the union of two principles that people have believed to be irreconcilable, namely the physical-mechanistic and the merely teleological way of explaining organized nature. Factual confirmation is exactly what this union of the two principles needs’ (Kant, 1999 [1790], p. 354 [11:185]). For a discussion of the epistemic status of the *Bildungstrieb* for Blumenbach and Kant, see the conflicting interpretations of Richards (2000), Sect. 2.4, Lenoir (1980), pp. 84–85, and Jardine (1991), pp. 26–27. For a discussion of Blumenbach’s theory of the *Bildungstrieb*, see McLaughlin (1982) and Steigerwald (2002).

¹⁶ Kant (1987 [1790]), p. 309 [5:423].

to whose execution it would not also be free to form another type in different circumstances), then one could just as well designate this natural determination of formative nature germs or original predispositions, without thereby on that account regarding the former as machines and buds (as in the system of preformation) that are originally enclosed from first origins and only on occasion unfold themselves. Rather they would be bare, no further explicable limitations on a self-structuring capacity, the latter which we can so little explain or make conceivable. (Quoted from Kant's *Determination of the concept of a human race* [1785], in Sloan, 2002, pp. 243–244)

The remaining question is thus to understand why, whilst being a fervent supporter of epigenesis, Kant nevertheless retains some crucial traits of preformationism.

The preformationist component of Kant's account is to be found first and foremost in the ordering principles, or predispositions, inherent in the organism's stock.¹⁷ These natural predispositions, which are dynamic and purposive, play the role of limiting structures that prevent the mutation of species. In other words, they account for the fact that species cannot transform and that their characteristics are pre-determined.

I, for my part, derive all organization from *organic beings* (through reproduction) and account for later forms (of this sort of natural thing) through laws of gradual development from *original predispositions* (of the kind that one frequently finds in the transplantation of plants). I assume that these predispositions were to be found in the organization of the line of descent. (Kant, 2001a [1788], p. 50 [8:179])

This entails that some structuring powers or predispositions, acting upon specific pre-determinative and pre-existent 'germs', underlie organic development. The role played by these predispositions is thus akin to what is an essential trait of preformationism, namely the idea that there are intrinsic, pre-existent, purposive structures which predetermine the development of organisms: 'nothing is to be taken up into the generative force that does not already belong to one of the being's undeveloped original predispositions'.¹⁸

Despite the fact that Kant brings these natural predispositions into play in his account of organic generation in the *Critique of judgment*, he does not expound their nature in any detail there, but does so instead in the context of his earlier discussions of human races. I will thus examine this issue in the following section, which is entirely dedicated to Kant's account of race. In the meantime, and on the basis of these analyses, it can be concluded that Kant's theory of organic generation is a middle ground between preformation and epigenesis that takes the form of what I would like to call an epigenesis of natural predispositions.

¹⁷ Sloan, and, following him, Zammito, importantly remarks that Kant's resort to natural predispositions makes his theory diverge radically from Blumenbach's version of epigenesis (Sloan, 2002, pp. 246–247, and Zammito, 2003, p. 93). In this sense, as Zammito writes, Kant believed that 'epigenesis implied preformation: at the origin, there had to be some inexplicable (transcendent) endowment, and with it, in his view, some determinate restriction in species variation. Thereafter, the organized principles within the natural world could proceed on adaptive lines. This made *epigenesis* over into Kant's variant of *preformation*' (Zammito, 2003, p. 88).

¹⁸ Kant (1987 [1790]), p. 306 [5:419]. See also 'The only generation we know from experience is a *generatio* that is not only *univoca*—as opposed to *aequivoca*, from unorganized material—but also *homonyma* [as opposed to *heteronoma*], where the product shares even the organization of what produced it' (ibid., p. 305 n. [5:420]). This should be contrasted to Herder who sees organic forms in continuity with the inorganic. For accounts of Herder's position *vis-à-vis* Kant, see Zammito (2002), Jardine (1991), pp. 33–35, and Beiser (1987), pp. 150–158.

The aim of the following section is to examine the implications of this theory in the context of the debate on the unity of the human species and the diversity of the human races.¹⁹ This will also allow a closer examination of Kant's concept of 'natural predisposition'.

2. The human races: monogenesis vs. polygenesis

The issue of the unity of mankind was very much debated in the eighteenth century, in particular following the publication of Lord Kames's defence of a polygenetic theory in *Six sketches on the history of man* (1774).²⁰ Kant, for his part, was a fervent advocate of monogenesis, the idea that mankind comes from a single original stock.²¹

Following Buffon's definition, all human beings belong to the same natural genus, as they beget fertile children with each other. Hence they must all belong to the same stock. If they have actually all sprung from this common stock, they will form a family. (Kant, 1963 [1775], p. 98 [2:429])²²

The need to develop his own theory of race is based on the fact that, for Kant, Buffon's rule, whilst it explains the biological unity of the human species, is insufficient to account for human racial diversity. In other words, he believes that Buffon's definition of the human species, which supports monogenesis, needs to be complemented by a theory of races which defines them as sub-categories of the same species so that the fact of human racial diversity stops being a threat to monogenesis.²³ And this is precisely where Kant's theory of organic generation comes into play.

More precisely, the connection between Kant's theory of organic generation and his theory of the human races consists in the fact that the former, which I have labelled an 'epigenesis of natural predispositions', provides the biological grounds for the latter.

¹⁹ As Zammito notes, 'the crucial issue, linked with epigenesis, was to account for the variation within a unitary human species. Preformationism had virtually no answer to offer. Epigenesis did' (Zammito, 1998, p. 8).

²⁰ Lord Kames held a narrow definition of humanity according to which the differences between cultures are so great that human groups around the world can reasonably be regarded as separate species. For details on Kames, see Bernasconi (2001), pp. 19–20, and Sebastiani (2003).

²¹ In fact, Walter Scheidt has argued that Kant produced 'the first theory of race which really merits that name' (Scheidt, 1950, p. 372). More recently, Robert Bernasconi writes that Kant was the first one 'who gave the concept [of race] sufficient definition for subsequent users to believe that they were addressing something whose scientific status could at least be debated' (Bernasconi, 2001, p. 11). It should be noted that Kant wrote two essays solely on the question of the human races, 'On the different races of men' (1775) and 'Determination of the concept of a human race' (1785), whilst 'On the use of teleological principles in philosophy' (1788) is also partly dedicated to this issue. Although these texts were written in the context of Kant's ongoing debates with Herder, Forster and Blumenbach, it falls outside the scope of this paper to discuss them. For a treatment of these debates, see Bindman (2002), pp. 155–189, and Strack (1997).

²² Buffon's rule is that 'animals belong to the same genus if they produce fertile offspring together' (Kant, 1963 [1775], p. 98 [2:429]). This rule should be understood in the context of his attack on Linnaean taxonomy. For a detailed account of the controversy between Buffon and Linnaeus, see Sloan (1976). For an account of Buffon's natural history within a Kantian perspective, see Sloan (1979), pp. 125–134, Bernasconi (2001), pp. 21–24, and Zammito (2002), pp. 234–236, 302–307.

²³ As Sloan writes, 'Kant accepted the Buffonian meaning of 'race', but went beyond him by attributing these permanent lineages to the possession of *Keime und Anlagen*, a notion not found in Buffon's writings' (Sloan, 2002, p. 239). Buffon, for his part, explains the diversity of human types mechanically as produced by changes in response to environmental conditions (Buffon, 1954, p. 378). See Sloan (2002), p. 239, and Bernasconi (2001), p. 21.

For, without a preformationist component that allows for natural predispositions to be developed and then transmitted, permanent racial lineages cannot be secured. Yet without an epigenetic component that allows some seeds rather than others to be actualised depending on the environment, racial differences cannot be accounted for. In this sense, Kant's theory of organic generation can be understood as the condition of possibility of his account of races.

Yet if the theory of the epigenesis of natural predispositions allows Kant to develop the theory of race he needs in order to secure the monogenesis of the human races, it also imposes a number of restrictions—the most noteworthy being that the seeds of all races had to be present from the start in the original stock since the transmission of seeds is the only way of securing the inheritance of racial characters. In other words, at variance with purely epigenetic theories of generation, Kant's theory entails that biological inheritance can only be caused by natural predispositions present in the original stock: 'Inheritance can only be based on those original germs or dispositions which lie in the genus itself'.²⁴ This is due to the fact that 'The mere potentiality of transmitting any acquired character by inheritance is proof enough that a special germ for it must have been present in the organism. External circumstances may occasion, but cannot produce, inheritable modifications'.²⁵ The preformationist component of Kant's theory of generation demands that there must have been an original, single stock containing the seeds of all human races. This stock, in turn, guarantees that all races belong to the same species since the biological lineage is preserved by inheritance.

On this basis, Kant's strategy consists in distinguishing between traits that are invariably inherited, which will form the basis of his definition of a race, and those that are not. The necessity of this distinction is based on the fact that 'Only that in an animal genus which is unfailingly inherited authorises class distinctions'.²⁶ Thus, within each species, two types of differentiation can be made: a differentiation between 'races' (according to which the members of a species who possess characters that are invariably inherited belong to the same race); and a differentiation between 'varieties' (according to which the members of a species who possess characters that are only partially hereditary constitute varieties).

In the natural system *genus is the same as species*, namely a group of common origin. Varieties are hereditary deviations within a genus. We can transplant varieties into other regions or cross them with other varieties of the same stock. If a variety maintains itself unchanged through many generations when transplanted and, when crossed with other varieties, produces *intermediate offspring*, we call it a *race*. (Ibid. [1775], p. 98 [2:430])

Kant importantly observes that traces of the colours of a Negro and a White who breed both unfailingly appear in the offspring, whereas the complexions of a brunette and a

²⁴ Kant (1963 [1785]), p. 151 [8:97].

²⁵ Ibid. [1775], p. 99 [2:430]. As Lovejoy remarks, Kant is 'a vigorous opponent of the supposition that acquired characters can be inherited, and an unqualified partisan of the doctrine of the continuity and unmodifiability of the germ-plasm' (Lovejoy, 1968, p. 183). For a detailed refutation of evolutionist interpretations of Kant's racial views, see Lovejoy (1968).

²⁶ Kant (1963 [1785]), p. 150 [8:99].

blonde who breed do not.²⁷ Skin colour, insofar as it appears to be the only character that is invariably dependent on the two parents, is thus identified as the biological criterion for distinguishing between races. On this basis, Kant's classification of the human races takes the following form:

We assume four classes of mankind, distinguished by the colour of their skins: the Whites, the yellow Indians, the Negroes, and the copper-red Americans—sufficiently well-isolated also in their habitations. The important function which the skin exercises by evaporation and excretion further justifies this distinction. (Ibid. [8:93])²⁸

Kant's choice of skin colour as the criterion for distinguishing between races is, of course, partly based on the fact that skin colour appears to be the only character that is invariably inherited from both parents. But it is also based on what Kant believes to be the essential feature of skin colour, namely its purposiveness.

The reason why this character [skin colour] is an appropriate basis for a class distinction . . . is that the expulsion of wastes by means of sweating is the most important bit of concern exercised by nature insofar as the creature—which is affected quite differently by exposure to all sorts of different climates—is supposed to be preserved with the least amount of recourse to artificial means. (Quoted from Kant's *Determination of the concept of a human race* [1785], in Lenoir, 1980, p. 92)

Skin colour fulfils a crucial function in the survival of the human species, namely it allows the adaptation of the species to different climates and different environmental conditions by regulating the constitution of the blood and allowing the expulsion of waste through sweating.²⁹ In this sense, skin colours are purposive, they are all pre-adapted to a specific type of climatic environment, and they are all present, latently, as seeds, in the original human stock:

²⁷ 'Blondes and brunettes are not different races, because when they intermarry, the children may all be blonde or all brunette; they are only sports of the white race' (ibid. [1775], p. 98 [2:430]). See also 'Among us white folk there are many hereditary qualities by which families or even peoples differ. But none of these is *unfailingly inherited*' (ibid. [1785], p. 150 [8:94]).

²⁸ See also 'I believe we need assume only four races and can derive from them all noticeable and permanent differentiation. They are: (1) the White, (2) the Negro, (3) the Hunnish, Mongolian, or Kalmuck race, (4) the Hindu race' (ibid. [1775], p. 99 [2:432]). For an account of the incongruity between Kant's two definitions of the four races, see Zammito (2006), pp. 41–43.

²⁹ This appears most clearly in Kant's speculations about the physical basis of blackness, where he appeals to iron particles in 1777 and to phlogiston in 1785: 'For good reason, one now ascribes the different colour of plants to the differing amounts of iron precipitated by various fluids. As all animal blood contains iron, nothing prevents us from ascribing to the different colours of the human races the same cause. In this way the base acid, or phosphoric acid . . . reacts strongly with the iron particles and turn red or black or yellow' (quoted from Kant's *On the different races*, 1775, in Eze, 1995, p. 238). And 'Now the purpose [of race] is nowhere more noticeable in the characteristics of race than in the Negro; merely the example that can be taken from it alone, justifies us also in the supposition of seeing an analogy in this race to the others. Namely, it is now known that human blood becomes black, merely by dint of the fact that it is loaded with phlogiston . . . Now the strong stench of the Negro, which cannot be removed through any amount of washing, gives us reason to suppose that their skin removes a great deal of phlogiston from the blood and that nature must have organized this skin in such a way that the blood can be dephlogistonised to a much greater degree than is the case with us' (quoted from Kant's *Determination of the concept of a human race*, 1785, in ibid.).

the descendants of this first human couple, for whom the *complete* original predisposition is still undivided for all future deviate forms, were (potentially) fitted for all climates. Their seed could, in other words, have developed in such a way that would make them fitted for that one region on the earth into which they or their early offspring might have wandered. (Kant, 2001a [1788], pp. 46–47 [8:173])

It is not that the human species has to adjust itself to fit the environment in which it lives; rather, the human species can adjust to different environments because it possesses a variety of seeds pre-adapted to a variety of environments: ‘the germs of the four main skin colours must have been present in the original stock. After dispersing from their original habitat, they adapted themselves to their new surroundings’.³⁰ Certain seeds contained in the original stock are actualised in accordance with the requirements of the environment men find themselves in, and the actualisation of these seeds is precisely what constitutes a race. The racial characters produced by these actualised seeds are then transmitted to the offspring, thus guaranteeing permanent racial lineages:

whatever is to reproduce itself must have been present in the generative system, predestined to occasional development according to circumstances. Man was destined for every climate and every soil, so there had to lie dormant within him diverse germs, to be kept back or unfolded as occasion demands. But nothing foreign to the type must be able to penetrate into the generative system. (Kant, 1963 [1775], pp. 99–100 [2:435])³¹

The seeds of all races were present from the start, and the appropriate seeds were first actualised to serve a purpose that arose from environmental circumstances, and then transmitted to the offspring.

The fact that Kant’s account of human natural predispositions is teleological is thus central to his biological definition of human nature: man is a natural being whose predispositions are defined in terms of Nature’s intentions for the human species. As expounded in this section, it appears most clearly in Kant’s definition of races as Nature’s means to secure man’s adaptation to different climatic environments. The aim of the final section is to show that a number of other, possibly quite unexpected, human features also stem from natural predispositions determined by Nature’s intentions for the species.

3. Anthropological characterisation and Nature’s purposes for the human species

In ‘Religion within the boundaries of mere reason’, Kant distinguishes between three predispositions of human nature:

1. The predisposition to the *animality* of the human being, as a *living being*;
2. To the *humanity* in him, as a living and at the same time *rational* being;
3. To his *personality*, as a rational and at the same time *responsible* being. (Kant, 2001b [1793], p. 74 [6:26])

The predisposition I want to focus on here is the predisposition to animality, for I believe it is through its analysis that we can reach a better understanding of Kant’s biological account of human nature. Kant defines the purpose of this predisposition as threefold:

³⁰ Kant (1963 [1785]), p. 151 [8:97].

³¹ See also ‘chance or general mechanical laws cannot produce such adaptations’ and ‘therefore, we must consider such occasional developments as being prepared in the stock’ (ibid., p. 99 [2:435]).

first, for self-preservation; *second*, for the propagation of the species, through the sexual drive, and for the preservation of the offspring thereby begotten through breeding; *third*, for community with other human being, i.e. the social drive. (Ibid., p. 75 [6:26])³²

Kant insists on the fact that these animal predispositions are still at work at the level of civil life: ‘In the civil constitution of a state, which represents the highest degree of artificial enhancement of the good characteristics in the human species toward final purpose of its destiny, animality still manifests itself earlier and basically stronger than pure humanity’.³³ And decisively, he remarks that what is presupposed for man in the predisposition to animality is in fact identical to what is presupposed for other organisms: the biological determination at work is the same.³⁴

Providence refers exactly to that same wisdom which we observe with amazement at work in the preservation of a species of organized natural beings [the human species] that constantly busies itself with self-destruction, and still finds itself always protected. Nevertheless, we do not assume a higher principle in such providential care than we assume to be at work already in the maintenance of plants and animals. (Kant, 1996 [1798], p. 246 [7:328])

Kant’s account of ‘Nature’s intentions’ for the human species has been the object of numerous debates which I cannot engage with here due to restrictions of space. As is well known, Kant sometimes understands Nature as having providential aspects, and in particular, as designed to allow men to fulfil their moral destiny.³⁵ This conception of Nature should, I believe, be distinguished from his ‘naturalistic’ account of Nature according to which it aims at the preservation of the species.³⁶ The scope of this paper is strictly limited to the latter. In this sense, for my present purposes, it is sufficient to note that Kant’s conception of human nature characterises it as developing certain natural predispositions which aim at the preservation of the species:

This precaution of Nature to equip all her creatures for all kinds of future condition by means of hidden inner predispositions, by the help of which they maintain

³² For the differences between the account of man’s natural predispositions in the *Religion* and the *Anthropology*, see Wilson (2001). Kant dedicates a short passage of the *Anthropology* to the predisposition to animality, in which he does not mention sociability but rather focuses on the sexual impulse to maintain the species. The reason could be that this point is developed a few pages later, when he focuses on the characteristics of the human species. There, he restates the claim that ‘man was not meant to belong to a herd like the domesticated animals, but rather, like the bee, to belong to a hive community. It is necessary for him always to be a member of some civil society’ (Kant, 1996 [1798], p. 247 [7:330]).

³³ Ibid., p. 244 [7:327].

³⁴ Note that Kant’s concept of ‘biological determination’, insofar as it includes domains such as nationality and personality, is notably broader than modern conceptions of the division between nature and culture.

³⁵ See for instance §84 of the *Critique of judgment* where Kant writes that Nature ‘strives to give us an education that makes us receptive to purposes higher than those that nature itself can provide’. This purpose is ‘man, the subject of morality . . . the final purpose of creation to which all of nature is subordinated’ (Kant, 1987 [1790], pp. 321–323 [5:433–436]). For analyses of the concept of final purpose in relation to that of ultimate purpose, see Yovel (1980), pp. 175 ff., van der Linden (1988), pp. 134 ff., and Loudon (2000), pp. 141 ff.

³⁶ These two conceptions of Nature (i.e. naturalistic and moral) are, of course, closely connected, and I would argue that both are present in texts such as the *Idea for a universal history* and *To perpetual peace*. Unfortunately, it falls outside the scope of this paper to discuss this claim.

Table 1
The human species' natural predispositions

Category	Race	Sex	Person	Nation
Criterion	Hereditary transmitted features	Gender	Temperament	Civil whole united through common descent
Types	White, Negro, Hindu, Hunnish–Mongolian–Kalmuck	Male and Female	Sanguine, Melancholic, Choleric, Phlegmatic	French, English, Spaniard, etc.

themselves and be adapted to diversities of climate or soil, is truly marvellous. (Quoted from Kant's *On the different races* [1775], in Lovejoy, 1968, p. 186)

In the *Anthropology from a pragmatic point of view*, Kant analyses the natural predispositions at the origin of human varieties according to four criteria: person, sex, nation and race.³⁷ Relative to these criteria, Kant distinguishes between different 'types', as shown in Table 1.

I will attempt to show that for Kant, temperaments, gender and nations are defined as being determined according to Nature's intentions for the human species—that is to say, they are products of Nature, natural predispositions as defined in the preceding sections.³⁸ To support this claim, I will analyse them successively, beginning with gender.

Gender—Kant dedicates numerous pages of his *Anthropology* to questions of gender, and in particular to feminine characteristics. His account is essentially teleological since

If we are to succeed in characterising this sex, we cannot use as our principle what *we make* our end, but only what the end *of nature* was in devising the female sex. Since this end must still be wisdom according to Nature's design, despite the foolishness of human beings, these assumed ends will also be able to reveal their underlying principle which does not depend on our own choice, but on the higher design for the human race. (Kant, 1996 [1798], p. 219 [7:305]; translation modified)

For Kant, most of women's characteristics are understood in naturalistic terms—he does not consider the possibility of their social conditioning: 'Civilisation does not establish these feminine characteristics, it only causes them to develop and become recognisable under favourable circumstances'.³⁹ More precisely, women are said to have two natural purposes, a biological one and a social one: 'These ends are: (1) the preservation of the species, (2) the improvement of society and its refinement by women'.⁴⁰ The first purpose is accomplished

³⁷ Earlier discussions of these varieties in relation to aesthetic experience can be found in Kant's *Observations on the feeling of the beautiful and the sublime* (1764). For an account of these discussions, see Bindman (2002), pp. 70–78, and Larrimore (1999).

³⁸ My reading goes against Wood's claim that Kant 'regards gender, national and racial differences as matters of *character*—that is, as the results of free agency in taking over differences in physiological endowment or a geographically conditioned mode of life This also indicates that Kant regards under the heading 'effects of freedom' a good deal that would not be considered 'voluntary' in the legal or moral sense' (Wood, 2001, p. 473). Contrary to this claim, I will show that for Kant, temperaments, gender, races and nations are determined by Nature's intentions for the human species—that is to say, they are products of Nature rather than freedom.

³⁹ Kant (1996 [1798]), p. 216 [7:303]. As Robin May Schott argues, Kant 'asserts that women's character, in contrast to men's, is wholly defined by natural needs. Women's lack of self-determination, in his view, is intrinsic to their nature' (Schott, 1996, p. 474).

⁴⁰ Kant (1996 [1798]), p. 219 [7:305].

through women's 'birthing' and nurturing abilities: 'As Nature entrusted to the woman's womb her most precious pledge, namely, the species, in the shape of the embryo by which the race was to propagate and perpetuate itself, Nature was concerned about the preservation of the embryo and implanted fear into the women's character'.⁴¹ The second purpose is carried out through women's taste and inclinations: 'Since Nature also wanted to instil the finer sensations, such as sociability and propriety, which belong to culture, she made this sex the ruler of men through modesty and eloquence in speech and expression'.⁴²

Temperaments—Kant distinguishes between four temperaments: the sanguine, who 'is carefree and full of expectation; he attributes great importance to everything for the moment, and at the next moment he may not give it another thought'; the melancholic, who 'attributes great importance to all things that concern him'; the choleric, who 'is hot-tempered, and . . . quickly ablaze like a straw fire'; finally, the phlegmatic, who has 'a tendency to inactivity'.⁴³ It is unnecessary to discuss the detail of each temperament here. What is crucial to note for my present purpose, however, is that temperaments are given by Nature: 'what Nature makes of man belongs to temperament (wherein the subject is for the most part passive)'.⁴⁴ This appears most clearly in Kant's threefold distinction between natural talent or nature, temperament and character. What distinguishes man's 'nature' from his temperament is that the former has to do subjectively with the feeling of pleasure or displeasure—it is a passive feeling—whilst the latter has to do objectively with the appetitive power and is thus active. However, both man's temperament and his nature belong to sensibility, whilst his character belongs to his mode of thinking: 'the first two dispositions indicate what can be made of a person; the third (which is moral) shows what man is prepared to make of himself'.⁴⁵ This suggests that temperaments are products of Nature (i.e. they belong to the domain of what Nature makes of man) whilst character is a product of freedom (i.e. it belongs to the domain of what man makes of himself).⁴⁶

Nations—The case of nations is much less straightforward than the preceding ones. Kant defines nations as 'being united into a civil whole through common descent'.⁴⁷ In this sense, the common descent guarantees the genealogy and the persistence of a nation's character: 'we are speaking here about innate, natural character [and] we are not talking about the artificially acquired (or affected) characteristics of nations'.⁴⁸ Kant does not actually relate national predispositions to racial ones, although the following passage suggests that nations, at least originally, were made of a single racial origin: 'Russia and European Turkey, both largely of Asiatic lineage, would lie outside Frankestan [the name given

⁴¹ *Ibid.* [7:306].

⁴² *Ibid.*; translation modified.

⁴³ *Ibid.*, pp. 198–201 [7:288–290]. For a detailed account of Kant's concept of temperament, in particular relative to the historical tradition of the temperaments, see Larrimore (2001).

⁴⁴ Kant (1996 [1798]), p. 203 [7:292].

⁴⁵ *Ibid.*, pp. 195–196 [7:285].

⁴⁶ For a detailed discussion of temperaments in relation to character, see Munzel (1999).

⁴⁷ Kant (1996 [1798]), p. 225 [7:311]. Nations thus differ from people defined as 'inhabitants living together in a certain district, so far as these inhabitants constitute a unit' (*ibid.*).

⁴⁸ *Ibid.*, p. 235 [7:319]. In this sense, by defining national characters in terms of natural predispositions, Kant goes against the traditional thought, found in Montesquieu amongst others, that they are determined by the climate and the environment. Note also that in his discussion of national characters, Kant's usage of the notion of 'character' differs radically from the one spelt out in the context of his discussion of persons. For the former, national character, is a product of Nature, whilst the latter, the character of a person, is a product of freedom.

by the Turks to Christian Europe]; the first is of Slavic, the other of Arabian origin, both are descended from two ancestral races which once extended their reign over a larger part of Europe than any other people'.⁴⁹ There are certainly more nations than races, but each nation was initially composed of one race.

However, the case of nations is difficult to analyse in terms of 'what Nature makes of national characteristics' for two reasons. Firstly, 'we should derive our findings from the indigenous character of the ancestral people in their lineage; but the documents for such a study are not available'.⁵⁰ The natural tendencies of various people are thus impossible for us to determine, for we have no historical documents to investigate. Secondly, wars and invasions have made it nearly impossible for national characteristics to remain unaltered. For instance, in the case of the character of the English, 'the immigrations of tribes of Germans and French . . . have destroyed the original characteristics of this people as their mixed language proves'.⁵¹ In this sense, when Kant remarks that nations have an unaltered national character as long as they 'are not blended by the force of war', what he has in mind is the fact that national characters have by and large been considerably transformed by invasions which have made them mixed rather than unaltered.⁵² As a result, inquiries into 'what Nature makes of nations' are 'risky attempts', and Kant limits himself to a mere description of nations 'as they are now', in their altered state.⁵³

On this basis, we can conclude that gender, temperaments and nations are determined according to Nature's intentions for the human species; just as races, they are natural predispositions, products of Nature.⁵⁴ Kant generally suggests that Nature's chief purpose is the preservation of the human species: 'Nature has also stored into her economy such a rich treasure of arrangements for her particular purpose, which is nothing less than the maintenance of the species'.⁵⁵ However, the remaining question is, what is Nature's purpose for these human types? Unfortunately, Kant is not very clear on what its purpose actually is. To compensate, I want to sketch a conjecture on the basis of sparse textual evidence: each of the four types is a different means to the realisation of a purpose which is itself a means to the realisation of Nature's overall purpose for the human species, namely its preservation.

⁴⁹ *Ibid.*, p. 227 [7:312].

⁵⁰ *Ibid.*

⁵¹ *Ibid.*, p. 229 [7:314].

⁵² *Ibid.*, p. 226 [7:312].

⁵³ *Ibid.*, p. 227 [7:312]. Without getting into the details of Kant's analyses, we can note the general tone of his remarks about national characters by mentioning some of them: the French have a taste for conversation, are courteous, have good taste and are benevolent. The English renounce all kindness to others, claim respect for themselves, prefer to dine alone, and hate the French. The Spaniards are solemn and proud, moderate and obedient to the law, they resist any reform and have a romantic quality of spirit (*ibid.*, pp. 228–231 [7:313–316]).

⁵⁴ However, it is crucial to note that although the behaviours prompted by these natural predispositions do emerge from biological determinism, they can be re-formed by man through culture. In this sense, by means of biological determinism, Nature identifies the purposes to be fulfilled (for instance, survival through diet, rest and reproduction) whilst man's culture leaves room for the development of various means to achieve these purposes (different forms of foods, siesta, insemination and so on). Another way of understanding the point at issue is to resort to the distinction between the first-personal and the third-personal perspective. From the latter biological perspective, several types of behaviour aim essentially at the survival of the individual and the reproduction of the species. From the former cultural perspective however, these types of behaviour can take different meanings—meanings that are in some sense superimposed onto the biological function. For details of this claim, see [Cohen \(Forthcoming\)](#).

⁵⁵ Kant (1996 [1798]), p. 225 [7:310].

Table 2

Kant's account of temperaments

Temperament of feeling	Sanguine	Melancholic
Temperament of activity	Choleric	Phlegmatic

As already shown in the preceding section, races express the necessity of a diversity of human biological character so that man can be suited to all climates. And unsurprisingly, gender's purpose is the reproduction and the preservation of the species.

Nature has equipped the male with greater strength than the female in order to bring both, who are also rational beings, together in intimate physical union for the most innate purpose, the preservation of the species. Moreover, for this capacity of theirs (as rational animals) Nature provided them with social inclinations so that their sexual partnership would persist in a domestic union. (Ibid., p. 216 [7:303])

The case of temperaments is less straightforward. Larrimore suggests that 'Society as a whole is best off with a variety of types, whose strengths and weaknesses provoke each other and keep each other in check'.⁵⁶ Just as in the case of the human races, Nature can be seen as willing the diversity rather than the uniformity of human temperaments.⁵⁷ I think that whilst this is in some sense correct, it calls for additional analyses. More precisely, the social interplay between the four types of temperaments should be understood as a means Nature uses to create an antagonism between men. For men's various temperaments clash with each other: firstly, the sanguine is opposed to the melancholic and the choleric to the phlegmatic; and secondly, temperaments of feeling are opposed to temperaments of activity.⁵⁸ (See Table 2)

The diversity of temperaments thus leads to a form of antagonism amongst men which plays a role akin to man's 'unsocial sociability':

The means that nature uses to bring about the development of all of man's capacities is the antagonism among them in society, [that is to say] men's unsocial sociability, i.e., their tendency to enter into society, combined, however, with a thoroughgoing resistance that constantly threatens to sunder this society. (Kant, 1983 [1784], pp. 31–32 [8:20])

Men's antagonism compels them to reach an agreement that secures civil peace through the creation of a lawful civil order. In order not to self-destruct, they have to regulate social antagonism, and it is the means to this regulation, peaceful civil society, that allows them to develop fully their capacities and predispositions: 'the lawless state [held] back all of our species' natural capacities until the evil that this placed them under [i.e. antagonism] compelled them to leave this state and enter into a civil constitution, in which all those seeds can be developed'.⁵⁹ Moreover, men's internal discord is not the only means Nature uses to establish and secure civil order.

⁵⁶ Larrimore (2001), p. 273.

⁵⁷ See for instance 'With respect to varieties, nature seems to prevent the *fusing together* of characters because this is contrary to her purposes, namely, to preserve a diversity of characters' (Kant, 2001a [1788], p. 42 [8:167]).

⁵⁸ See Kant (1996 [1798]), p. 197–198 [7:287].

⁵⁹ Kant (1983 [1784]), p. 35 [8:25]. See also 'It is only in such a society [i.e. civil society] that nature's highest objective, namely, the highest attainable development of mankind's capacities, can be achieved' (ibid., p. 33 [8:22]).

Table 3
Nature's purposes for the human species

Criterion	Type	Nature's purpose
Gender	Male, Female	Reproduction and preservation of the human species
Race	White, Negro, Hindu, Hunnish–Mongolian–Kalmuck	Diversity of biological character so as to be suited for all climates
Temperament	Sanguine, Melancholic, Choleric, Phlegmatic	Diversity of human character (leading to social antagonism) which secures civil peace
Nation	French, English, German, Italian, etc.	Diversity of national character (leading to external war) which secures international peace

Even if a people were not constrained by internal discord to submit to public laws, war would make them do it, for according to the natural arrangement explained above, every people finds itself neighbour to another people that threatens it. (Ibid. [1795], p. 124 [8:365])

Thus, nations play a role akin to that of temperaments, but in an international context. The diversity of nations is Nature's means to secure international peace through the regulation of external wars.

The mechanism of nature, in which self-seeking inclinations naturally counteract one another in their external relations, can be used by reason as a means to prepare the way for its own end, the rule of right, as well as to promote and secure the nation's internal and external peace. This means that nature irresistibly *wills* that right should finally triumph. (Ibid. [8:366–367])⁶⁰

As a result, we can conclude that firstly, Nature's overall purpose is the preservation of the human species and the full development of its capacities. And secondly, each human 'type' is the means to the realisation of a particular purpose which contributes to the realisation of Nature's overall purpose for the species, as summarised in Table 3.

4. Conclusion

This paper set out to examine the biological dimension of Kant's account of human nature. I have begun by showing that two premises are required to explain the fact of human diversity: one that secures the fact that there are *human* types, that is to say that all men belong to the same biological stock and that thus all varieties stem from the same biological origin (monogenesis of human types); and another that secures the fact that there are human *types*, that is to say that there are biological variations between human beings and that these variations are transmitted to the offspring (epigenesis of human natural predispositions).

I have then suggested that a crucial component of Kant's account of human nature conceives of man as a biological species which develops natural predispositions accounted for

⁶⁰ Kant also writes that nature 'uses two means to prevent peoples from intermingling and to separate them, differences in *language* and *religion*, which do indeed dispose men to mutual hatred and to pretexts for war. But the growth of culture and men's gradual progress toward greater agreement regarding their principles lead to mutual understanding and peace' (ibid. [1795], p. 125 [8:367]).

by Nature's intentions. From these predispositions arise human 'types' destined to fulfil certain natural purposes. In turn, these purposes (namely, reproduction, climatic adaptation, civil peace and international peace) are the necessary means to the realisation of Nature's 'grand design' for the human species, namely its preservation and the realisation of its natural capacities:

man as an animal endowed with capability of reason (*animal rationabile*) can make himself a rational animal (*animal rationale*). On these grounds he first preserves himself and his species; secondly, he trains, instructs, and educates his species for social living; thirdly, he governs the species as a systematic whole (arranged according to principles of reason) which belongs to society. (Kant, 1996 [1798], p. 238 [7:321–322])

In this sense, man's biological determinism leads to the species' preservation, cultivation, and civilisation.⁶¹

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⁶¹ This claim, and its relation to Kant's *Anthropology*, is more fully explored in Cohen (Forthcoming).

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