

“Concerning the Employment of Teleological Principles in Philosophy” (**“Über den Gebrauch teleologischer Prinzipien in der Philosophie”**) appeared as an article in two parts in the literary magazine *Teutscher Merkur* in 1788. The primary focus of this short piece lies on answering objections that had been raised against Kant’s conception of human race by Georg Forster, professor of natural history at Vilnius. The essay is significant, however, not only as a defence of Kant’s earlier view, first developed in his 1775 ODR and his 1785 HR, but also as an investigation into the role of teleological principles for the study of nature. Kant’s reply to Forster presents a preliminary but insightful treatment of a theme to which Kant turns his full attention two years later in CPJ. The text ends with an endorsement of the work of Karl Leonhard Reinhold, a follower of Kantian philosophy and more supportive critic than Forster of Kant’s writings on natural history.

Kant begins his reply to Forster with a clarification of the concept of race as a “radical peculiarity indicating a common phyletic origination and at the same time permitting several such persistently hereditary characters [...] of the same phylum” (ETP, 8:163/CEAHE:199). Different races can originate from the same phylum insofar as it contains “predispositions” (ETP, 8:165/CEAHE:201; also translated as “germs”) for hereditary features purposive for different environments. The differentiation of the races results out of the realization of such features under different environmental conditions. Races differ because of their varying hereditary characteristics, by contrast with varieties or “sorts (*varietates nativae*)” (ETP, 8:164/CEAHE:200) whose differentiating traits are not necessarily passed on to their offspring. Kant points out that the concept of race thus spelt out inherently belongs to natural history and must be distinguished carefully from concepts of natural description. In order to study the origin and development of the human species rather than “mere methodical nomenclature”, we must “pay attention to that which could indicate the phyletic origin, not just the resemblance of characters” (ETP, 8:164/CEAHE:200).

With these conceptual clarifications in place, Kant addresses two substantive disagreements with Forster. The first concerns the correct application of the concept of race. Forster recognises only two human races, one black and one white, and construes all other differences as the result of environmental variation. By contrast, Kant regards other types of skin colour as equally heritable and as a “mark” (ETP, 8:170/CEAHE:206) of racial difference. Kant’s reasoning is empirical and grounded in what he regards as evidence of “unfailing half-breed generation” (*ibid.*). However, some of this supposed evidence seems to rest on prejudices concerning the unchanging character of different ethnic groups (see ETP, 8:175f./CEAHE:210f.).

The second disagreement concerns the unity of the human species. While Forster believes that the black and white races have distinct phyla, Kant argues for one common origin. A necessary condition for different races having originated from a common phylum is their ability of “gaining fertile progeny” (ETP, 8:164f./CEAHE:200) with one another, a condition that, as Kant points out, is satisfied in the case of the human races. Kant argues furthermore that the rational principle of parsimony favours his own hypothesis of monogeneticism over Forster’s polygeneticism. Forster’s “system does not procure the slightest further ease for the possibility of rational comprehension”, compared with Kant’s much simpler alternative “according to which the germs are originally implanted in one and the same phylum and subsequently develop purposively for the first general population” (ETP, 8:169/CEAHE:204). On Kant’s account we therefore have reason to believe that different human races share a phyletic origin.

Kant's disagreements with Forster extend not only to substantive issues in the theory of race but also to its methodology, concerning in particular the use of teleology in natural history. Kant argues that the use of teleological principles is justified, since "the concept of an organized being already includes that it is some matter in which everything is mutually related to each other as end and means, which can only be thought as a system of final causes" (ETP, 8:179/CEAHE:214). The conception of organised beings to which Kant alludes here prefigures his conception of the organism as a "natural end" (CPJ, 5:369/CECPJ:242), spelt out in detail in the second half of CPJ. According to this conception, teleological principles are in use whenever we investigate organisms. Kant thus suggests that we "derive all organization [of means and ends] from organic beings" together with the "*original predispositions*, which were to be found in the organization of its phylum" (ETP, 8:179/CEAHE:214). No special justification is required, for instance, for the principle that racial differences are the result of a purposive development in given environments.

Kant's defence of the employment of teleological principles consciously excludes the question of how the teleological organisation in the original "phylum itself *came about*" (ibid.). As Kant reminds us with an indirect reference to the Transcendental Dialectic, human reason "cannot and may not at all concoct a priori basic powers" in order to explain events in nature it does not know, "for then it would devise nothing but empty concepts" (ETP, 8:180/CEAHE:215). We know a basic power that brings about teleological organization "only *in ourselves*, namely in our understanding and will, as a cause of the possibility of certain products that are arranged entirely according to ends, namely that of *works of art*" (ETP, 8:181/CEAHE:216). Kant argues that the only way to determine anything about the cause of organized beings is therefore to "think an intelligent being along with them – not as though we understood that such an effect is impossible from another cause" but "since those ends [i.e. organisms] cannot be represented at all without such an analogy" (ETP, 8:182/CEAHE:216). Once again foreshadowing his account in CPJ, Kant presents teleological principles as having analogical status that can be used "where sources of theoretical cognition are not sufficient" (ETP, 8:160/CEAHE:196; cf. CPJ, 5:375/CECPJ:247; CPJ, 5:388/CECPJ:259f.).

Related terms: end, natural history, organism, purposiveness, race, teleological judgment, teleology

end (*Zweck*). Kant uses the term “Zweck”, variably translated as “end” or “purpose”, to refer to the concept that guides intentional action as well as the product of such action. On the one hand, an end is the conceived aim of goal-directed activity; it is “the concept of an object insofar as it at the same time contains the ground of the reality of this object” (CPJ, 5:180 [1790]/CECPJ:68). On the other hand, an end is the realized aim of goal-directed activity; it is “that the concept of which can be regarded as the ground of the possibility of the object itself” (CPJ, 5:227/CECPJ:112; see also CPJ, 5:220/CECPJ:105; 5:369f./CECPJ:242; 5:408/CECPJ:277; 5:426/CECPJ:294).

Ends thus “have a direct relationship to reason” (ETP, 8:182 [1788]/CEAHE:216), and the capacity to set ends can be found only in rational beings. Kant identifies this capacity with the will, the faculty “to act in accordance with the representation of an end” (CPJ, 5:220/CECPJ:105; see also G, 4:427 [1785]/CEPP:78; CPrR [1788], 5:58f./CEPP:187). In his moral philosophy, he distinguishes between two types of end that can serve as the determining ground of the will. Subjective ends are dependent on incentives, the subjective grounds of desire. They have relative worth and can therefore be the basis only of hypothetical imperatives. Objective ends, by contrast, are dependent on motives, which are objective grounds of volition. Since objective ends are justified by reason and have absolute worth for all rational beings, they can ground categorical imperatives, or universal practical laws (see G, 4:427f./CEPP:78; also CPrR, 5:62/CEPP:190). Kant argues that only “rational nature” is an objective end, and “exists as an end in itself” (G, 4:429/CEPP:79; see also CPrR, 5:87/CEPP:210; 5:131/CEPP:245). Thinking of all rational beings as ends in themselves, while abstracting from all their subjective ends, leads Kant to the concept of “a whole of all ends in systematic connection” or, simply, “a kingdom of ends” (G, 4:433/CEPP:83).

Since ends are intrinsically connected to reason, the concept of an end has no determinate application to anything that is the result of natural causes. However, the concept nevertheless has a regulative use in the search for unity among natural phenomena. In CPR, Kant argues that it is a requirement of science that we conceive of empirical nature as systematically unified under laws as if it were intentionally caused. Scientific enquiry is guided by the regulative idea that the diversity of natural objects and processes is ordered according to “a single supreme and inner end, which first makes possible the whole” (A833/B861 [1781/1787]/CECPR:691, my trans.; see also A691ff./B719ff./CECPR:616ff.). In CPJ, Kant develops this thought further by presenting the “purposive unity of nature” as a regulative principle of reflective judgment (CPJ, 5:180/CECPJ:68). In judging according to this principle, we do not determine nature by means of the concept ‘end’, “but can only use this concept in order to reflect on the connection of appearances in nature that are given in accordance with empirical laws” (CPJ, 5:181/CECPJ:68).

In addition to the purposiveness of nature as a whole, Kant is concerned in CPJ with two further regulative uses of the concept of an end, associated with beautiful objects and organisms. In the first part of the book he argues that reflecting on beautiful things elicits in us a free and harmonious play of our cognitive faculties that is experienced as aesthetically pleasing. Beautiful things appear to us as purposive for our cognitive faculties. We judge them as having the form of an end without, however, ascribing to them a relation to any determinate end. Kant thus associates beautiful objects with a subjective and formal purposiveness, or a “purposiveness without an end” (CPJ, 5:226/CECPJ:111).

In the second part of CPJ, Kant argues that we judge organisms as displaying an objective and material purposiveness. What is special about organisms is that they must be regarded as “*organized and self-organizing*” beings (CPJ, 5:374/CECPJ:245). Like the products of intentional activity, the parts of an organism appear to be purposefully arranged to ensure the survival of the whole. The leaves, branches and roots of a tree, for example, seem to perform a function, each contributing to the tree’s survival. Kant thus presents it as the “principle” or “definition” of organisms that they are “that in which everything is an end and reciprocally a means as well” (CPJ, 5:376/CECPJ:247f.). Unlike machines or other familiar products of intentional activity, however, organisms appear to be the products of end-directed processes within nature itself. In its generation, growth, and the regeneration of damaged organs, for example, the parts of a tree stand in mutual interaction with one another, reciprocally influencing and maintaining each other. The tree seems to be the result of its own goal-directed activity. Kant therefore concludes that we must regard organisms as “natural ends” (CPJ, 5:369/CECPJ:242). Since we cannot conceive of nature as acting intentionally, the employment of the concept of a natural end has a merely regulative function for the reflecting power of judgment. We can judge natural beings by means of this concept only “in accordance with a remote analogy with our own causality in accordance with ends” (CPJ, 5:375/CECPJ:247).

Having carefully distinguished between ends in morality and science, it is an important question for Kant how the two types of end relate to one another. If morality is to be possible in the natural world, he argues, we must present nature as a “system of ends” (CPJ, 5: 427/CECPJ:295) that was designed by a “moral cause of the world” for the purpose of a “final end”, that is, the human being as moral agent (CPJ, 5:450/CECPJ:315f.; see also Rel, 6:5f. [1793]/CERRT:58ff.; EAT, 8:333ff./CERRT:226ff.; [1794] TPP, 8:360ff. [1795]/CEPP:331f.). The regulative idea of nature as an end thus not only guides our scientific investigations of nature but also grounds the hope that moral ends can be realized in nature.

Related terms: kingdom of ends, organism, purposiveness, reflective judgment, regulative, teleological judgment, teleology, Wille

mechanism (*Mechanismus*). Kant uses the term “mechanism” and its cognates in a number of distinct but related ways. His most general notion identifies a mechanism with causal necessity. As he puts it in CPrR, “all necessity of events in time in accordance with the natural law of causality can be called the *mechanism* of nature” (CPrR, 5:97 [1788]/CEPP:217). Mechanism thus construed contrasts with freedom and action determined by reason (see CPrR, 5:29/CEPP:163; BXXXII [1787]/CECPR:118; PP, 8:366 [1795]/CEPP:335; MM, 6:355 [1797]/CEPP:491; OP, 22:52 [1796-1803]/CEOP:212).

Kant adds content to this general notion throughout his practical writings. In MM, he characterises the formation of habits as “a mechanism of sense rather than a principle of thought” (MM, 6:479/CEPP:593; see also LJ, 9:76 [1800]/CELL:579). In his pedagogical works, he conceives of the “mechanism of instruction” as one that “requires the student to imitate” (A, 7:225 [1798]/CEAHE:329), in opposition to education aimed at the student’s enlightenment (see P, 9:450 [1803]/CEAHE:444). In his political philosophy he furthermore contrasts “obedience under the mechanism of the state constitution to coercive laws” with the “spirit of freedom” (OCS, 8:305 [1793]/CEPP:303; see also WIE, 8:37 [1784]/CEPP:18).

Kant employs a more specific notion of mechanism in CPJ. He is concerned with the “mere mechanism of matter” (CPJ, 5:395 [1790]/CECPJ:266, my trans.), characterized as the causality of “the natural laws of matter” (CPJ, 5:408 [1790]/CECPJ:277) and as the effect that bodies or their parts have on one another “in accordance with mere laws of motion” (CPJ, 5:390/CECPJ:261). To conceive of the mechanical generation of a body, for example, is to “consider a material whole, as far as its form is concerned, as a product of the parts and of their forces and capacities to combine by themselves” (CPJ, 5:408/CECPJ:278). The mechanism of material nature can be taken to refer to the laws of dynamics and mechanics discussed in MNS as part of the metaphysics of nature. The dynamical laws govern a body’s attractive and repulsive forces (see MNS, 4:536f. [1786]/CETP81:245), while the laws of mechanics concern the communication of motion between moving bodies (see MNS, 4:530/CETP81:239).

Mechanism understood in this more specific sense is contrasted with natural teleology (see CPJ, 5:408 [1790]/CECPJ:277). Kant argues that organisms are mechanically inexplicable because they display “a self-propagating formative power, which cannot be explained through the capacity for movement alone (that is, mechanism)” (CPJ, 5:374/CECPJ:246; see also UNH, 1:234 [1755]/CENS:204; OPA, 2:129 [1763]/CETP70:170; DSS, 2:329 [1766]/CETP70:316). Where no mechanical explanation is forthcoming, we must therefore follow the regulative maxim that the mechanism of nature is “subordinated to an intentionally acting cause” (CPJ, 5:422/CECPJ:290; cf. ETP, 8:179ff./CEAHE:214ff.). Since we have knowledge of nature only in as far as we can explain it by reference to its mechanism, however, in science we must continue searching for mechanical causes. Kant thus declares that without “the principle of the mechanism of nature there can be no science of nature at all” (CPJ, 5:418/CECPJ:287; see also MM, 6:320/CEPP:464).

Related terms: causality, freedom, law, nature, necessity, teleology