

**Rousseau and the Ancients**  
**Rousseau et les Anciens**

**edited by**  
**sous la direction de**

**Ruth Grant**  
**&**  
**Philip Stewart**

**Pensée Libre N° 8**

**CANADIAN CATALOGING  
IN PUBLICATION DATA**

Main entry under title:  
Rousseau and the Ancients  
(Pensée Libre: no. 8)  
Text in French and English  
Includes bibliographical references

ISBN 0-9693132-7-6

1. Rousseau, Jean-Jacques, 1712-1778. I. Grant, Ruth. II. Stewart, Philip. III. North American Association for the Study of Jean-Jacques Rousseau IV. Title: Rousseau and the Ancients. V. Series

**DONNÉES DE CATALOGAGE  
AVANT LA PUBLICATION**

Vedette principale au titre:  
Rousseau et les Anciens  
(Pensée Libre: no. 8)  
Texte en français et en anglais.  
Comprend des références bibliographiques

ISBN 0-9693132-7-6

1. Rousseau, Jean-Jacques, 1712-1778. I. Grant, Ruth. II. Stewart, Philip. III. Association nord-américaine des études Jean-Jacques Rousseau. IV. Titre : Rousseau et les Anciens. V. Collection

The publication of this volume was made possible by cooperation of the North American Association for the Study of Jean-Jacques Rousseau, Duke University and Wabash College.

Ouvrage publié grâce au concours de l'Association nord-américaine des études Jean-Jacques Rousseau, Duke University et Wabash College.

ISBN 0-9693132-7-6

© North American Association for the Study of Jean-Jacques Rousseau/  
Association nord-américaine des études Jean-Jacques Rousseau, 2001.

Collection *Pensée Libre* dirigée par Melissa Butler  
*Pensée Libre* series editor: Melissa Butler

Imprimé aux États Unis  
Printed in the United States

## Jean-Jacques Rousseau, “Terminator” and *Telos* in Nature

When investigating the natural state of things, we must fix our attention, not on those which are in a corrupt, but on those which are in a natural condition.

Aristotle, *Politics*<sup>1</sup>

### Monstrosities and *Telos*:

The monster or monstrosity obsessed the early modern mind as first a curiosity to be wondered at, and served later as an “epistemic instrument” in eighteenth-century debates about generation (Hagner 190; Daston and Park, 329ff.). While monsters had earlier been viewed as supernatural in origin, they came in the eighteenth century to be considered part of the natural world (see *Encyclopédie*, MONSTRE). Initially the key issue was whether the monstrosity resulted from an autonomous nature acting on its own, or from a supernatural force; this fundamental consideration had significant theological ramifications. If God acted in creating monsters, how could such deformities fall within the order of Creation? On an Aristotelian view, what was the final cause, or *telos*, of such beings? If God did not create monsters, serious questions about His omnipotence then arose. Either way, debates about monsters amounted to far more than mere amusement for the *curieux*.

The question of the monstrosity was at least as old as Democritus (see Aristotle, *Generation of Animals*, 419). Aristotle discussion of the origins of monstrosity (*ibid.*, 407ff.) agreed quite ties into the spectrum of natural phenomena, Rousseau insisted that vegetal monsters are neither natural nor even supernatural in origin; rather, monsters are wholly unnatural, products of a vain *human* violation of the natural *telos* of the organism<sup>3</sup>; cultivators of showy plants wished to be known, praised and admired for their gardens.<sup>4</sup> Rousseau’s critique of the sterile flower derives from his view that human creativity arises from vanity: the horticultural monstrosity pleases the eye but cannot reproduce life.

The exemplary case for Rousseau is the horticultural monstrosity of “double” flowers rendered so elaborate through hybridization that their reproductive capacities disappear, as Rousseau explains to Madeleine

Catherine Delessert:

To the extent that you find them [flowers] double, do not become attached to examining them; they will be disfigured, or if you wish, adorned according to our fashion, nature will not find herself in them anymore: she refuses to *reproduce* by monsters thus mutilated; because if the most brilliant part, that is, the corolla, multiplies itself, it is at the expense of the most *essential parts*, which disappear under this brilliance (4: 1155, emphasis added).

Rousseau relies implicitly on the ancient idea of final cause, or *telos*, to posit the monstrosity of sterile hybrids. Sterility disrupts *telos* in the most fundamental way possible; a sterile plant cannot realize its final cause — to assume its normal form and propagate its kind.

While not a close student of plants,<sup>5</sup> Aristotle examined human and animal monsters in relation to final cause, finding that while monstrosities “are not necessary so far as the purposive or final cause is concerned, yet *per accidens* they are necessary” (*Generation of Animals* 403). Aristotle and Rousseau agree on one crucial point, therefore; the monster does not attain its final end.

Linnaeus expressed a similar view in his *Philosophia Botanica* of 1751, a work Rousseau regarded highly. Like Rousseau, Linnaeus was aware of human intervention to cultivate sterile hybrids. Linnaeus writes, “[l]uxuriant Flowers are not Natural, but are always *Monsters*” (Linnaeus 95; see also 79, par. 119). The monstrous character of these flowers lies not in their luxuriance, but rather, in their sterility, the price exacted by their luxuriance. This sterility arises from multiplication of the petals at the expense of the plant’s reproductive organs, which diminish in size and capacity as the petals are multiplied. Linnaeus relied for this insight on Sébastien Vaillant, whose *Discours sur la structure des fleurs* of 1717 pointed to the compromised reproductive capacities of “these agreeable monsters,” which “people raise with so much care under the name of double flowers.”<sup>6</sup>

This view of horticultural monsters has been given a new lease on life by recent debates about biotechnology; scientists have patented a mouse and cloned a sheep, and promise further developments of this kind. A less glamorous, but equally far-reaching, development in plant bioengineering is the so-called “terminator” technique.<sup>7</sup> “This [technique] consists of introducing a killer ‘transgene’ that prevents the germ of the harvested grain from developing. The plant grows normally and produces a harvest, but the grain is biologically sterile” (Berland and Lewontin). In Terminator, as Bacon might say, “human Knowledge and human Power, do really meet in

one" (32).

Terminator bears an uncanny resemblance to the monstrous doubled flowers described by Vaillant, Linnaeus and Rousseau. Terminator is, however, much more dangerous than those eighteenth-century monsters. As a culmination of the Baconian teaching, this feat of bioengineering has implications for virtually every facet of human life. According to Berland and Lewontin, Terminator would promote inequality, immiseration and unknown health effects. These possibilities would not have been lost on Rousseau, who wrote trenchantly of the physical ills brought on by civilization, and of the havoc wrought by metallurgy and agriculture (see *OC* 3: 138–39, 171). What would Rousseau make of men nourished on potatoes spliced with the genes of animals? Bacon's dream is Rousseau's nightmare.

Rousseau questioned the ecological disruptions and genetic transformations of nature promoted by such eighteenth-century savants and statesmen as Buffon, Linnaeus and Banks. These transformations included intercontinental species transplantations; Rousseau notes in "Vivace" that the study of species transplanted out of their climes yields many "false observations" (*Dictionnaire de botanique*, 4: 1247). As noted above, he looked upon sterile hybrids as the products of human art pursued for profit and a kind of perverse visual pleasure, as well as *amour-propre*. For him, both transplants and sterile hybrids constituted crucial instances of human intervention causing species to lose their natural *telos*. His views reflect an awareness not only of debates and developments in contemporary natural history, agriculture and exploration, but also of the tradition, dating from antiquity, of considering the nature of a thing as its development toward its final end.

Terminator lacks *telos* because it is *sterile*. Rousseau would consider Terminator a monster created sterile for human benefit. This Frankenstein of the plant realm violates the most fundamental law of living creation, namely reproduction. Rousseau writes in *VÉGÉTAL*, "As plants are born and live, they decay and die, this is the irrevocable law to which all bodies are subject; as a consequence, they *reproduce* themselves" (4: 1246, emphasis added). Rousseau's concept of teleology is central to how he would view genetically modified organisms such as Terminator. Rousseau has a teleological, rather than an "antiteleological bias" (Butterworth 211; see also Cantor). Rousseau's *teleological* bias — informed by a subtle and many-layered notion of both internal and external teleology — informs his understanding of natural processes.<sup>8</sup>

On a Rousseauian view, Terminator can not be said to be natural in any sense; like the ancients Rousseau understood as "monstrosities" any beings that failed to take their proper form. For Aristotle, purpose in nature

is synonymous with form; form cannot arise from a sterile organism. Reproduction, if not the final cause for natural beings, is an efficient cause for animal and plant life; i.e. reproduction is a necessary, if not sufficient, condition for life. Rousseau finds such an exemplary form in the reproductive apparatus of flowering plants: "Let us start [our study of botany] with the flower .... It is in this part that nature has enclosed the *summary* of her work, it is by this that she *perpetuates* it, and it is also of all the parts of the vegetal ... the least subject to variations" (4: 1152, emphasis added). Self-reproduction and constancy characterize the most "essential" plant parts, those of the flower. Nature and *telos* are identical or at least intimately related: nature must have a *telos*; *telos* is a necessary characteristic of all that is truly natural. Terminator therefore undoes the concept of *telos* in nature developed in antiquity and passed down, with certain important modifications, to the eighteenth century.

### Ancient views of teleology

Three moments in ancient and medieval thought underlie Rousseau's view of the *telos* of nature: Platonic, Aristotelian and Thomist. While "[f]rom the Greeks on, there was a widespread belief that everything in nature and its processes has a purpose, a predetermined goal" (Mayr 57), the ways in which philosophers posited these goals in nature differed greatly, starting with the ancients.

#### (1) *The Platonic account*

In *Timaeus* Plato holds that "God therefore, wishing that all things should be good, and so far as possible nothing be imperfect, and finding the visible universe in a state not of rest but of inharmonious and disorderly motion, reduced it to order from disorder, as he judged that order was in every way better" (42).<sup>9</sup> The Creator, or demiurge, is a form-giving creator; his "divine knowledge is 'know-how' for the persuasion of necessity" (Bernadete 35). *Timaeus*, a Pythagorean, has the demiurge create plants for the use of man: "And to support [the mortal creature] the gods devised and brought into being a substance akin to it, but with different form and senses, another kind of living thing, trees, plants and seeds. These we have today schooled and domesticated to our purposes by agriculture." *Timaeus* acknowledges that "[e]verything that has life has every right to be called a living thing," but he reduces plants to mere utility, preferring them for food over animal flesh, even though he concedes to plants what he terms the "third sort of soul," i.e. the vegetative soul of "a creature with a life of its own, but [which] cannot move and is fixed and rooted because it has no

self-motion" (105).

Thus, the Platonic *telos* arises outside the organism, impelled by an external agent. Biologists term this "external" or "cosmic" teleology (Mayr 58). Plato's demiurge, like the Creator in Genesis, has become unnecessary, its functions fulfilled by natural selection: "The overall process of evolution is not teleological in the external sense. Evolution can be explained without recourse to a Creator or planning agent external to the organisms themselves" (Ayala 11).

Rousseau's relationship to Plato's reduction of plants to human use is complex; on the one hand he imagines nature as an external agent that has provided plant life for the purpose of sustaining animal life: "I have often thought in looking closely at the fields, the orchards, the woods and their numerous inhabitants that the vegetal realm is a store of food given by Nature to man and the animals" (*Réveries*, 1: 1064). On the other hand, he resists reducing nature to frivolous uses, especially pharmaceutical ones: "The first misfortune of Botany is to have been regarded since its birth, as a part of Medicine," so that "people looked for plants only for finding remedies" (4: 1201). Rousseau criticizes a reliance on Pliny, who writes that medicines are bestowed on man by "that holy Mother of all things for the healing of mankind, so that even the very desert was made a drug store" (Pliny 3; see also *OC* 4: 1202).

## (2) Aristotle and Theophrastus

Aristotle's teleology is complicated both internally, and in its reception, especially within the Christian tradition, beginning with the Neoplatonist Ammonius (Sorabji 181). In the *Politics* Aristotle seems to accept Platonic teleology: "Plants exist for the benefit of animals, and some animals for the benefit of others. Those which are domesticated, serve human beings for use as well as for food. [...] Accordingly, if nature makes nothing purposeless or in vain, all animals must have been made by nature for the sake of man" (23). This statement implies that nature acts as an external agent for the final purpose of making plants serve animals, which in turn serve man. In *Physics*, however, Aristotle distinguishes clearly between things that are made and things that exist by nature: "Some things are due to nature; for others there are other causes. Of the former sort are animals and their parts, plants and simple bodies like earth, fire, air, and water — for we say that these [...] are due to nature [...] each has *in itself* a source of change and staying unchanged" (II.1, emphasis added). Hence, Aristotle's approach to natural phenomena includes an important (if not exclusive) focus on internal teleology, or what comes to be by nature. Aristotle's teleology was concerned primarily with the form-giving shape or 'form' of

things” (II.1). Soul is this form:

Now it may be that the Form of any living creature is Soul, or some part of Soul, or something that involves Soul. At any rate, when its Soul is gone, it is no longer a living creature [...] it should be the duty of the student of Natural science to deal with Soul in preference to matter, inasmuch as it is the Soul that enables the matter to ‘be the nature’ of an animal. (*Parts of Animals* 69; 641a15ff.).

Matter well ordered according to nature characteristically takes a particular shape or form; any other form results by accident, and constitutes a deviation from the final cause. To use one of Rousseau’s examples, lily roots are always bulbs. Another version of Aristotelian final cause is that for which something exists or comes into being. Hence, “since nature is twofold, nature as matter and nature as form, and the latter [form] is the end, the cause as that for which must be the latter” (*Physics* 41; 199a25–30). Formal and final cause are therefore inextricably linked. Moreover, as Aristotle explains in *Parts of Animals*, the final cause “is the *logos* of the thing” (*Parts of Animals* 57; 639b20ff.). Aristotle extends this principle to plants: “The ‘for something’ is present in plants too, though it is less articulate” (*Physics* 41; 199b10). Hence, “you will find things coming to be which conduce to an end even in plants, for instance leaves for the protection of the fruit” (40; 199a25ff). The end is the protection of the fruit, which is crucial to plant reproduction; note that Aristotle does not refer to human needs, for the end is perpetuation of plant life itself.

Aristotle’s teleology has been termed “teleonomic” or “internal” teleology (Ayala, Mayr; see also Gotthelf, Balme, and Sorabji). Internal teleology realizes the final end or form of an organism solely through internal systems of regulation, without external intervention. As one leading scholar of Aristotle’s biological theory writes, “The novelty in Aristotle’s theory was his insistence that finality is *within* nature: it is *part* of the natural process, not *imposed* upon it by an independent agent like Plato’s world soul or Demiourgos. This [...] allows him to claim that none of his predecessors recognized the final cause with any clarity” (Balme 275, emphasis added).

Rousseau gives internal processes such as metamorphosis a leading role in his consideration of plants; the “fructification” is elaborated at length in the entry FLEUR:

[T]he flower seems to me to be a transitory state of the parts of fructification during the fecundation of the germ<sup>10</sup>; from this it follows that when all the parts of the fructification are gathered together, there will be only

one flower. When they are separated, there will be as many as there are parts essential to the fecundation; and as these essential parts number only two, namely, the pistil and the stamens, there will consequently only be two flowers, one male and the other female which will be necessary to the fructification. (*Dictionnaire de botanique*, 4: 1223).

Thus, "The Flower is a local and temporary part of the plant which precedes the fecundation of the seed, and in or through which it operates." Rousseau's definition of leaves exemplifies a teleonomic, functional explanation: Leaves "Are the organs necessary to plants to pump moisture from the air during the night, and to facilitate transpiration during the day; they substitute [...] for the [...] movements of animals" (FEUILLES, *Dictionnaire de botanique*, 4: 1220).

Yet Rousseau simultaneously retains an external, form-giving agent in all of his botanical writings, from the eight letters to Mme Delessert (which are most attuned to a lay audience) to the botanical dictionary and *Fragments de botanique*. He writes to Mme Delessert of "The Supreme Worker, attentive to the conservation of all the beings [who] has exerted great care in protecting the fructification of plants from the assaults which could destroy them" (4: 1165).

Some statements rely strongly on "Nature," an external agent acting on matter: "Nature, which has put so much elegance in all its forms and so much choice in all its distributions, above all has taken particular care to cover the nakedness of the earth with an adornment so rich and so varied that it charms the eyes and surprises the imagination" (*Fragments de botanique* 1249).

Rousseau's acceptance of external teleology is modified by his acceptance of internal teleology; internal teleology exhibits itself in the self-reproduction of organisms, their metamorphosis over the course of their lives and their varied methods of reproduction.

Rousseau adopted an Aristotelian and Platonic teleology rather than a Theophrastean one. In his *Metaphysics*, Theophrastus takes a modern position on teleology, criticizing Aristotle's final cause teaching: "the assignation of ends is in general not easy, as it is usually stated to be" (31). Theophrastus was critical of even the revised understanding of Aristotelian ends now accepted by many scholars. "That things existed or changed for the sake of something else seemed to [Theophrastus] impossible to assert in every case. Much more than Aristotle, he saw things happening by necessity and coincidence or chance" (French 89). Yet, however insightful and intriguing Theophrastus's critique of Aristotelian teleology was, it remained submerged under Thomist finalism. Thus, while Theophrastus is for Rousseau "the first, the most knowledgeable savant," and "the sole and

true Botanist” of antiquity (4: 1215), there is no evidence of which I am aware that Rousseau knew this critique of Aristotelian finalism. Nor is there any reason to believe that Rousseau would have accepted Theophrastus’s critique of Aristotelian teleology.

### (3) Thomist finalism

Thomas inherited Aristotle’s ideas through interpreters such as Christian Neo-platonist, Ammonius (c. 435/45–c. 517/26), who transformed Aristotle’s prime Mover into a Creator and Sustainer (Sorabji 181–82). Medieval thinkers such as Roger Bacon, Bonaventure and Thomas “all thought [...] Aristotle’s God was a Creator and Sustainer of the universe. [...] Any such belief in his causal role is hard to credit, for the main action of Aristotle’s God in the world seems to be merely that of a *mover*. He moves the heavens, but he does not seem to give them existence” (Sorabji 181). Thomas’s commentary on Aristotle’s *Physics* posits an external form-giving agent: “it is clear that nature is nothing but the *divine art*, impressed upon things, by which these things are moved to a determinate *end*” (lecture 14, 268, emphasis added). Christian theology saw goals *within* nature; Christian thinkers saw (1) the “divine art” in all things, and (2) the purpose or final end of nature as the use of man. The trajectories inherent in living beings were displaced by the exertions of a Creator acting for humankind. Later physico- or natural theology looked everywhere for evidence of God’s wisdom in the Creation, taking as evidence any qualities of plants or animals useful to humanity, considering them the work of providence.

Rousseau rejects the teleologies of neither Plato nor Aristotle; rather, he preserves elements of both. Pace Emberley and Butterworth, Rousseau does not abandon the Platonic-Christian framework of external final cause. This leads Roger de Vilморin to identify a “finalist and anthropocentric” strand in Rousseau’s botany (*OC* 4: ccrv). It is Theophrastus, the sole true botanist of antiquity, whose critique of finalism suffers oblivion.

### Rousseau’s view of final causes

Rousseau accepts with Plato the action of an external will on matter, but with Aristotle he likewise attaches great importance to processes of internal causation. These two positions are not easily reconciled. If, as Aristotle suggests, the organism’s own trajectory determines its life course, an external agent is unnecessary and superfluous. Eighteenth-century materialism reached this view as well, a century before Darwin; on a purely materialist account, Thomas’s God or Plato’s demiurge plays no role. The problems Rousseau poses, therefore, are (1) whether these two trajectories are compatible, and (2) whether it is even prudent to attempt to make them

compatible. As Rousseau suggests that we should presume unity rather than disunity in his thought (*Dialogues*, 1: 930), it seems reasonable to assume that Rousseau seeks to make external and internal causation somehow compatible with each other.<sup>11</sup>

The tension we see in Rousseau's works among two kinds of final cause echoes the ambiguities raised by the interaction of eighteenth-century natural philosophy with religious authority.<sup>12</sup> This relationship was not always one of conflict, although that is a popular interpretation of the Enlightenment promulgated by authors such as Peter Gay. Some influential interpreters of Rousseau follow Gay in insisting upon Rousseau's covert, if not overt, hostility to Christianity (Emberley 301; Butterworth 176–77). As historians of science argued, however, Gay's interpretation misses crucial purposes of eighteenth-century natural philosophy: "the whole point of 'natural philosophy' was to look at nature and the world as created by God, and thus as capable of being understood as embodying God's powers and purposes" (Cunningham and Williams 421). Rousseau makes this point in a letter to the Duchess of Portland (3 September 1766): "The study of nature detaches us from ourselves, and elevates us to its Author. It is in this sense that one truly becomes a philosopher; it is in this way that natural history and botany have a use for Wisdom and for virtue" (*Corr.* 30: 314; see also *OC* 4: 30, 80).

Rousseau's studied natural philosophy and physico-theology; he was an ardent (if critical) disciple of Linnaeus, a Creationist, and associated with Antoine-Laurent de Jussieu, who found the chain of being compelling (Cook and Kelly xxvi).<sup>13</sup> Rousseau's finalist reflections defy assimilation into a materialist interpretation. It is therefore necessary to contextualize his views on final cause within contemporary natural philosophy.<sup>14</sup> Eighteenth-century natural philosophy relied heavily on the chain of being and the order assumed to inhere in a divinely created cosmos (Lovejoy 183ff.). "For 'natural philosophy', 'nature' was seen as an expression of God's ordering hand and was, therefore, largely represented, despite considerable evidence to the contrary, as ordered, as obeying 'laws' and as providing a benevolent habitat for man, who was thus enabled by God to carry out His purposes" (Outram 50). The transformation of botanical taxonomy effected by Antoine-Laurent de Jussieu in the last quarter of the eighteenth century drew inspiration from the ideas of plenitude and continuity provided by the chain of being (Stevens 3ff.). The metaphor of a "chain" appears repeatedly in Rousseau's reflections on natural order.<sup>15</sup> In the *Confessions* he recounts being merely an ignorant spectator of nature until botany revealed to him a "chain of relations and combinations that overwhelms with its marvels the mind of the observer" (1: 641).<sup>16</sup> The

detailed study of nature informs the Savoyard Vicar's doctrine of final cause. By comparing "the parts among themselves," by studying "their combination, their relations," by noting "the harmony ... the intimate correspondence by which the beings which compose it lend each other a mutual aid," and by seeing "that each piece is made for the others," the Vicar realizes these elements conduce toward a common, yet unknown and unknowable, end (4: 578).

Rousseau's botanical work assumes an external force acting on nature, but his finalism is at odds with eighteenth-century physico-theology, whose adherents — Pluche, Nieuwentyt<sup>17</sup> and Linnaeus — assert a definite knowledge of the Creator's final end as *man*. Linnaeus provides the standard teleological view: "a nearer and more attentive view of nature teaches us the truth of what is affirmed in the holy scripture, that every thing was made for the use and happiness of man; if not immediately, yet mediately; and those things which at first appear useless, are rendered useful by labour guided by experience" (10–11). Rousseau's unorthodox finalism, I suggest, forms a crucial part of the "obscure" dogma (4: 576) exposed (not taught!) by the Savoyard Vicar (4: 581).<sup>18</sup>

Rousseau did not discard the idea of natural order, divinely created toward some end; rather, he modified this idea, while retaining its structure. Rousseau invested nature with a variety of meanings, including the opposite of civilization; this investment of nature with new meanings did not rob it of older connotations of goal-oriented orderliness, however. Furthermore, while it is easy to see Rousseau's thought experiment in the second *Discourse* as presenting an evolutionary, proto-Darwinian account of the descent of man, the view that this thought experiment<sup>19</sup> presents Rousseau's final standpoint disregards significant portions of his *oeuvre*. As a thought experiment, the second *Discourse* lays no claim to refute Scripture; Rousseau's finalist accounts in his later writings must lead us to temper a post-Darwinian inclination to view the second *Discourse* as his final position on teleology.<sup>20</sup>

Some argue that Rousseau does not resolve the two potentially opposed positions on final cause, that to do so would undermine a bifurcation of purposes and arguments fundamental to his philosophical project on the one hand, and his public project of education on the other; rather, they argue, Rousseau's teaching of public virtue recognizes "that some truths were salutary and that others [truths?] were socially harmful" (Emberley 303).<sup>21</sup> Among the "socially harmful" doctrines are those of the Churches; "the enduring core" of Rousseau's teaching is "much more subversive of Christian and classical teaching in disputing the ontological structure of that tradition. The radical character of the profession acts indeed as a mask,

but to the much more unorthodox character of Rousseau's fundamental agreement with the materialists" (Emberley 301, emphasis added).<sup>22</sup> This interpretation claims Rousseau's *final*, but private, view to be that materialism is not merely "convincing," but that it is *correct*. Materialism posits a universe consisting of inert, dead matter that changes into living, thinking, sensitive matter.<sup>23</sup> Rousseau did find something "convincing" in the materialists' detailed study of nature, but materialism did not answer all the outstanding questions it posed. As Leigh and others have argued, Rousseau was ultimately unpersuaded by the materialists.<sup>24</sup> To see Rousseau as a materialist requires a convincing account of his repeated polemics against the materialists, Epicureans, and Modernists (*Lettre à Franquières*, OC 4: 1140). In a footnote to the Profession of Faith he writes, "[i]t seems to me that far from saying that rocks think modern philosophy has discovered on the contrary that men do not think....the entire difference they find between a man and a stone is that man is a feeling being who has sensations, and the stone is a feeling being which does not" (4: 584). Rousseau attacks materialism in his writings on botany, rejecting the caricatured materialist view that trees can feel and stones think: "the death of a stone is an idea that would have never entered my mind" (4: 1246).<sup>25</sup>

Rousseau accepts the argument from design; his Vicar produces an "obscure" doctrine of modified final cause that accepts the limited validity of materialist insights without making them the final explanation for the universe. Cassirer notes, "the teleological argument retains for [Rousseau] its full force" (Cassirer 53; see also Grimsley 54ff.). This interpretation accepts the consonance of Rousseau's own views with those of the Savoyard Vicar, and credits Rousseau's claim that materialism could never provide him with a satisfying account for the the origins of intelligent life. While Rousseau stresses he is exposing his "sentiment," rather than providing a demonstration, he requires his interlocutors to show "clearly and through the senses the purely material generation of the first intelligent being" (*Lettre à M. de Franquières*, 4: 1140; see also 4: 1096).

Rousseau posits a rich and varied natural order in which all beings are "disposed in the best manner that is possible in relation to the whole" (*Lettre à Voltaire*, OC 4: 1069). *Why* Providence has done all this is unknowable:

I consider the order of the world, although I do not know its end, because in order to judge this order it is enough for me to compare the parts among themselves, to study their combination, their relations, to note the harmony [...] the intimate correspondence by which the beings which compose it lend each other a mutual aid. [...] I do not know [...] to what [end] the whole is good, but I see that each piece is made for the others, I ad-

mire the worker in the detail of his work, and I am certain that all these parts do not march thus in unison but for a common end which it is impossible for me to perceive. (4: 578)

The central claims of this statement are (1) that nature is an order, (2) we know it is interdependent, and (3) such an order must have an end, but we cannot *know* what that end is. The Vicar continues:

Let us compare particular ends, the means, the ordered relations of all kinds, then let us listen to the inner feeling; what healthy mind can refuse its testimony, to what uninformed eyes does the perceptible order of the universe not announce a supreme intelligence, and what sophisms is it necessary to amass to be unaware of the harmony of beings and the admirable combination of each piece for the conservation of others? (4: 578, emphasis added)

Unity and order indicate an unknown and unknowable end. Ontologically, final ends exist; epistemologically, they are unknowable. Confronted by the plant realm, Rousseau can say with certainty only this: “these shapes, these colors, this symmetry were not put here for nothing” (*Fragments de botanique*, 4: 1252). Here a true Socratic ignorance begins: “it was necessary to know in peace how not to know all the rest” (*Lettre à Franquières* 4: 1135).

Alexandra Cook

Victoria University of Wellington

### Notes

<sup>1</sup>This statement, taken from Aristotle’s *Politics*, Book I, chapter 5, serves as the epigram to Rousseau’s second *Discourse* (OC 3: 109). While Aristotle makes the statement in a discussion of slavery, it applies generally to his approach to natural and moral sciences.

<sup>2</sup>Translations, unless indicated otherwise, are my own.

<sup>3</sup>An exception is Zulieta, the Venetian prostitute, “a kind of monster, rejected by nature, by men, and by love” (*Confessions*, 1: 322). Her deformed nipple, unlike the luxuriant flower, does not appeal to human being of his tale: “a description of a likeness of the changeless, [and] being a description of a mere likeness will be merely likely” (41–42).

<sup>10</sup>Germ (*germe*) had largely passed out of contemporary botanical parlance by Rousseau’s time, and was replaced by ovary (*ovaire*). Rousseau acknowledges the close, even virtually synonymous, meanings of “germ” and “ovary” (4: 1231).

<sup>11</sup>The Frenchman comments, “[i]t did not take me long to sense in reading these books that what people had told me were fatuous declamations, adorned with beautiful language [...] were things profoundly thought through and forming a connected system which might not be true, but which offered nothing contradictory” (1: 930).

<sup>12</sup>Use of the term “science” to refer to the investigation of nature is anachronistic for this period. See Outram 48–49, and Cunningham and Williams 421; cf. Emberley 303.

<sup>13</sup>Linnaeus held that all the species were created by God at the beginning and new species arise by hybridization.

<sup>14</sup>It is not sufficient to cite Rousseau’s reliance on Buffon as “one of the authorities [who is] respectable for Philosophers” (*Discours sur l’inégalité*, 3: 195; cf. Emberley 317). Rousseau’s reception of Buffon is complex; even Buffon, “the Pliny of our century,” has not unraveled the mystery of generation, relying on “an unintelligible principle irreconcilable with the known laws of mechanics and motion” (*Lettres Morales*, 4: 1096).

<sup>15</sup>Rousseau’s letter of 17 January 1742 to F. J. de Conzié critiques Pope’s chain of being, not in relation to the notion of the chain itself, but rather, in relation to Pope’s terminating the chain with God, as if there were no greater distance between the divinity and the next species below it, as between other species on the chain (*Corr.* 1: 135).

<sup>16</sup>This discussion precedes Rousseau’s invocation of worship in the out-of-doors two paragraphs later (1: 642).

<sup>17</sup>The Vicar comments: “I read Nieuventit with surprise, and almost with shock” (4: 580).

<sup>18</sup>The view that the Vicar teaches Rousseau’s overt, but merely salutary doctrine, as opposed to his authentic and private one, neglects the avowed obscurity of his teaching; it cannot be both overt and “obscure” at the same time.

<sup>19</sup>In his prefatory remarks to the second *Discourse*, Rousseau remarks, “let us begin then by putting aside all the facts” (3: 132).

<sup>20</sup>To employ the second *Discourse* to refute Rousseau’s statements regarding his belief in design and final cause is questionable (cf. Emberley 303); in 1762 Rousseau writes to Malesherbes: “All that I have been able to retain of these masses of great truths which in a quarter of an hour enlightened me under that tree, have been very weakly distributed in my three principal works, that is, the first discourse, that on inequality, and the treatise on education, which three works are inseparable and form together a single whole” (1: 1136).

<sup>21</sup>Emberley argues that the argument from design expounded in the profession of faith merely constitutes a public teaching, and that it contradicts

principles expounded in *Émile* (materialist experience through the senses for the purpose of gaining control over nature) and the precepts of the second *Discourse* (scientific reasoning rather than a priori theological truth). Emberley's article is fraught with errors, however. He claims to quote from the *Confessions*, when actually quoting from the *Rêveries* (300; see also 302). He misleadingly asserts: "the Emiles and Sophies are submerged within the rhythmic cycles of birth, growth, fullness and decay of the life process" and that this is distinct from the vicar's world (311); yet Rousseau consistently calls on the materialists to account for generation. Emberley also claims that Emile's control of matter contradicts the Vicar's theology, yet the Vicar says "man is the King of the earth" because he alone knows how to appropriate the elements by means of his industry (4: 582). Note that while Rousseau employs different teachings for different purposes, he does not adopt one simple position, even for the same purpose, e.g. in botany, he employs a mix of systems because no one system satisfies all his requirements.

<sup>22</sup>Rousseau addresses his faith in the *Rêveries*: "The result of my painful investigations was what more or less I had since set down in the Profession of faith of the Savoyard Vicar, a work unjustly prostituted and profaned in the present generation, but which can perhaps one day cause a revolution among men if ever good sense and good faith are reborn" (1: 1018).

<sup>23</sup>In what Victor Gourevitch has termed the "suppressed" paragraph of the *Lettre à Voltaire* (personal communication, 22 May 1999), Rousseau states that while he finds both the materialist and the religious accounts of the universe "convincing," it is the latter that "persuades" him (*OC* 4: 1071). The materialist account, while necessary, is therefore not sufficient. A vitalist materialism is epitomized in *D'Alembert's Dream*, in which Diderot imagines a stone statue being ground to fine dust, combined with humus, which as soil then gives rise to plant life, and thereby to human nutrition (Diderot 151).

<sup>24</sup>While the second *Discourse* presents a "predominantly secularised view of man," this view was slowly modulated "towards the latitudinarian form of Christianity he was ultimately to propound in the *Profession de foi*. The *Lettre à Voltaire* is the ambiguous chord of this modulation" (Leigh, 298–99).

<sup>25</sup>While the botanical dictionary might have been intended for a public audience some day, it was not primarily concerned to teach virtue by upholding a salutary belief in God. In a way, however, this work supports Rousseau's project to instill virtue, as botany uses leisure profitably, quells the passions, drives away idleness and reveals the Author of nature

(see e.g. 4: 1151).

### Works Cited

- Aristotle. 1963. *Generation of Animals*. Trans. A. L. Peck. London: Heinemann and Cambridge: Harvard UP, 1963.
- . 1968. *Parts of Animals*. In *Aristotle in Twenty-Three Volumes*, vol. XII. Trans. A. L. Peck. London: Heinemann and Cambridge: Harvard UP, 1968.
- . [1970] 1983. *Physics: Books I and II*. Trans. W. Charlton. Oxford: Clarendon Press, 1983.
- . 1995. *Politics*. Trans. E. Barker. Oxford UP, 1995.
- Aquinas, St. Thomas. *Commentary on Aristotle's Physics*. Trans. R. J. Blackwell, R. J. Spath, and W. E. Thirlkel. London: Routledge & Kegan Paul, 1963.
- Ayala, Francisco J. "Teleological Explanations in Evolutionary Biology." *Philosophy of Science* 37 (1970): 1–15.
- Bacon, Francis. *New Atlantis and The Great Instauration*. J. Weinberger, ed. Wheeling IL: Harlan Davidson, 1989.
- Balme, D. M. "Aristotle's biology was not essentialist." *Archiv für Geschichte der Philosophie* 62 (1980): 1–12.
- . "Teleology and necessity." A. Gotthelf and J.G. Lennox, eds., *Philosophical Issues in Aristotle's Biology*. Cambridge: Cambridge UP, 1987.
- Berland, Jean-Pierre, and Richard C. Lewontin. "Menace of the genetic-industrial complex." *Le Monde Diplomatique*, 8 January 1999: 54.
- Grimsley, Ronald. *Rousseau and the Religious Quest*. Oxford: Clarendon Press, 1968.
- Hagner, Michael. "Enlightened monsters." W. Clark et al., eds. *The Sciences in Enlightened Europe*. Chicago: U of Chicago P, 1999, 175–217.
- Leigh, R. A. 1964. "Rousseau's letter to Voltaire on optimism (18 August 1756)." *SVEC* 30 (1964): 247–308.
- Linnaeus, Carl. *Select Dissertations from the Amœnitates Academicæ*. Trans. F. J. Brand. New York: Arno, 1977 [reprint 1781].
- Lovejoy, Arthur O. *The Great Chain of Being: a study of the history of an idea*. Cambridge MA: Harvard UP, 1964 [1936].
- Mayr, Ernst. "The Multiple Meanings of Teleological." *Toward a New Philosophy of Biology*. Cambridge MA: Harvard UP, 1988.
- Outram, Dorinda. *The Enlightenment*. Cambridge: Cambridge UP, 1995.
- Plato. *Timæus and Critias*. Trans. D. Lee. Penguin, 1971.
- Pliny. *Natural History, books XXIV–XXVII*. Trans. W. H. S. Jones. 2nd ed. Cambridge: Harvard UP, 1956.

Sorabji, Richard. "Infinite power impressed: the transformation of Aristotle's physics and theology." *Aristotle Transformed: the ancient commentators and their influence*. R. Sorabji, ed. Ithaca NY: Cornell UP, 1990.

Stevens, Peter. *The Development of Biological Systematics: Antoine-Laurent de Jussieu, nature, and the natural system*. New York: Columbia UP, 1994.

Theophrastus. *De causis plantarum*. Trans. B. Einarson and G. K. K. Link. London: Heinemann and Cambridge: Harvard UP, 1976–1980, 3 vols.

— . *Enquiry into Plants*. Trans. A. Hort. Cambridge: Harvard UP, 1916, 2 vols.

— . 1929. *Metaphysics*. Trans. W. D. Ross and F. H. Fobes. Oxford: Clarendon P, 1929.