Ethics, Evolution and the Animal-Human Boundary

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Abstract
This paper traces the ethical consequences implicit in the collapse of the animal/human boundary. This boundary became suspect as early as the mid-17th century, but it was Darwinian evolution that gave the lethal blow to the distinction. There are two aspects in which the concept of evolution by natural selection gained ethical relevance: the one is the evolution of ethics, the other is the ethics of evolution. Although Darwin himself was engaged mostly in the former, his social scientist followers, such as Herbert Spencer, elaborated on the latter. However, whereas the Social Darwinists pretended to justify values on a scientific basis, their theories were based on the uncritical identification of their pre-existent value choices with the "ways of nature." After the resurgence of biological inquiries into morality following World War II, leading sociobiologist E. O. Wilson claimed that the biologization of ethics is unavoidable. However, his results were self-contradictory that further left the main focus of ethics untouched and were prone to fall back into Social Darwinism. Environmental ethicists also capitalize on the Darwinian notion of the evolution of ethics. While their effort to use evolution as a justification for particular moral practices is still questionable, their interpretation of living structures as adapted normative systems is far more promising. The critical examination of the fact/value dichotomy in relation to moral as well as amoral living systems is crucial in a biologically sensitive moral philosophy that wants to avoid the pitfalls of its predecessors.

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Motto:

For man is truly the leading animal among living creatures, and, if we pause to reflect,
he is also above all the others, which God in his omnipotence has created for man's amusement and benefit.
(J. F. Gronovius, sponsor of the first edition of Linnaeus's *Systema Naturae*[1])

Early debates over the animal-human boundary

Throughout the 2500 years of Western moral philosophy we have written testimony about, the moral sphere has been coextensive with the human sphere. Apart from the moral qualities of God who supposed to have bestowed special dignity on human beings, the rest of creation has been excluded from moral concerns and morality confined itself to humanity. Despite apparent differences in their treatment of animals, Greek and Christian thinkers agreed on the privileged ontological status of humans. Although certain animals such as snakes were often regarded as evil, vile and thus morally repugnant, their depiction as inherently mean served as a rhetorical device in order to emphasize and improve man's moral character.

It is not hard to see that any attempt to revisit the borderline separating humans from beasts was to have fundamental moral consequences, even if at first sight the relationship between the status of animals and ethics was not self-evident. The most efficient, though by no means the first, of these attempts was Darwinian evolutionary theory which ultimately led to the destruction of the traditional barriers. This is why Thomas Hardy could note in 1910: „Few people seem to perceive that the most far-reaching consequence of the establishment of the common origin of species is ethical (...).[2] Before Darwin, it was comparative anatomy that had cast the most serious and scientifically motivated doubts on the traditional demarcation between man and beast.

Ever since Aristotle it had been acknowledged that humans were indeed animals. Their distinctive *differentia* was rationality. Christian theology accepted this view and made another important distinction to secure human uniqueness: animals were classified into

[1] Gunnar Broberg, "Homo Sapiens: Linnaeus's Classification of Man", In: Tore Frängsmyr (ed.): *Linnaeus: The Man and His Work*, revised edition, Canton, MA: Science History Publications, 1994:156-194, p.172.

[2] Donald Worster, *Nature's Economy: A History of Ecological Ideas*. Cambridge: Cambridge University Press, 1977, p. 185.

bestiae or *bruta* and *homo* on the ground of the decisive and substantial feature of rationality being present only in the latter. The scholastic definition for *homo*, following Aristotle's method of classification, was *substantia corporea, vivens, sentiens, rationalis*. As man was a unique kind of being, it required unique kind of treatment and hence it could not be the object of natural history. Zoology was restricted to the examination of the *bruta*.[1]

Although the abyss isolating man from beast was metaphysical rather than biological, it was often held that even morphological features point to the superiority of humans. In *Timaeus*, Plato took man's erect posture for a sign of this superiority. Some medieval and early modern physicians elaborated the "argument from anatomy". An English doctor in the early Stuart era declared: „Man is of a far different structure in his guts from ravenous creatures as dogs, wolves etc., who, minding only their belly, have their guts descending almost straight down from their ventricle or stomach to the fundament: whereas in this noble microcosm man, there are in these intestinal parts many anfractous circumvolutions, windings and turnings, whereby, longer retention of his food being procured, he might so much the better attend upon sublime speculations, and profitable employments in Church and Commonwealth."[2]

This was exactly the picture that comparative anatomists from the second half of the 17th century began to question. In 1641 the Dutch anatomist and physician, Nicolaes Tulp described an ape, most likely a chimpanzee or a bonobo, for the first time in much detail.[3] The first dissection of an ape, probably a juvenile chimpanzee or bonobo, however, was conducted by Edward Tyson in London, 1698. Tyson reported that he found 48 similarities against 34 differing morphological features in comparison with humans. In his *Orang Outang, sive Homo Sylvestris, or, the Anatomy of a Pygmie* (1699), he concluded that his results "sufficiently evince, that our Pygmie is not a Man, nor yet the common ape, but a sort of animal between both, and tho' a Biped, yet of the Quadrumanus-kind."[4] Orang Outang was then a missing link in the

[1] Broberg, "Homo sapiens…", pp. 159-160.
[2] Thomas Keith, *Man and the Natural World: Changing Attitudes in England 1500-1800*. London: Penguin, 1984, pp. 31-32.
[3] Tulp was quite inconsistent in his nomenclature calling the ape alternatively Orang Outang, satyr, Homo sylvestris or Satyrus indicus.
[4] Raymond Corbey, *The Metaphysics of Apes: Negotiating the Animal-Human Boundary*. Cambridge: Cambridge University Press, 2005, p. 40.

great chain of being filling the gap between ordinary monkeys and human beings.

It was Carolus Linnaeus, however, who placed man into the order of all living things with no privileged status in it. Linnaeus had obviously no heretic affiliations, he clearly adopted the notion of *scala naturae* and he held that man was indeed *imago Dei*. Linnaeus stressed the excellence and nobility of man who by his faculty of reason was rendered superior over animals, but he nevertheless thought that such concerns belonged to theology's competence.[1] As a naturalist, he felt obliged to focus exclusively on morphological features and from this point of view the resemblance with lower creatures was undeniable. In a vindicative letter to Johann Georg Gmelin he wrote: "Perhaps we should remove those words [e.g. *Anthropomorpha*]. But I ask you and the whole world for a generic differentia between man and ape which conforms to the principles of natural history. I certainly know of none. (...) If I were to call man ape or vice versa, I should bring down all the theologians on my head. But perhaps I should still do it according to the rules of science."[2] In his early versions of his classification man shared a common ordo, *Anthropomorpha*, with apes and sloths. *Anthropomorpha* was in turn a subdivision of a class called *Quadrupedia*. In response to severe criticisms such as Gmelin's, in the authoritative edition of 1758 he replaced *Anthropomorpha* with *Primates*, and *Quadrupedia* with *Mammalia*. *Primates*, the first in rank, included *Homo sapiens* and other controversial, semi-mythical man-like creatures such as *Homo caudatus* and *troglodytes sive nocturnus*.[3] All three taxonomic groups (*Homo sapiens, Primates, Mammalia*) are still in use today.

Later revisions and reclassifications by Buffon, Blumenbach and others notwithstanding,[4] *Systema Naturae* let the spirit out of the bottle. „Principles of natural history" and the „rules of science" confronted traditional notions of human uniqueness and what was at stake from now on was the animal/human boundary and the extension of the moral realm.

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[1] Ibid. p. 45.
[2] Broberg, "Homo sapiens…", p. 172.
[3] The *Homo* "species" described in the later editions of the *Systema* (1758-66) and in *Anthropomorpha* (1760) are a strange mixture of earlier anatomical descriptions, travel reports from exotic lands, ancient bestiaria and myths, and pathological curiosities. See Broberg, "Homo sapiens…", pp. 179-193.
[4] Corbey, *The Metaphysics of Apes*, pp. 48-57.

Darwinian evolution and Social Darwinism

As the idea of evolution became more and more widespread, the debate over the animal-human boundary and the correspondent theological and moral concerns took on a different shape. Linnaeus believed in the fixity of species, and although in his *Fundamenta Fructificationis* (1762) he tended to accept a kind of transition from one plant species into another by hybridization, it never occurred to him to originate man, with all his capacities, from the lower spheres of the organic world. Man, in his physical constitution, was a part and parcel of the animal kingdom, but his divine spirit secured him a sufficient space of unquestionable uniqueness. Even evolution itself did not necessarily cast doubt on human dignity, although natural boundaries between living creatures became extremely blurred, to the horror of the orthodox and traditionalist Christians. As long as no naturalistic explanations of reason, speech and culture were proposed, these faculties could be regarded God-given. No sooner had Darwinian evolution by natural selection appeared on the scientific arena with the aspiration of giving a full account for the descent of man as a whole, human uniqueness seemed to lose its last refuge. At the same time, the question of the boundary was reshaped and new questions needed to be answered, provided one accepted the new theory with all its implications. First, if human beings with all their physical and psychological traits descended from some lower species, then its indubitably outlandish features as culture and morality must be given an explanation compatible with the principles of organic evolution. Second, if man's origin and his subsequent development can be described only in evolutionary terms without any appeal to supernatural intervention, measures of right and wrong and sources of obligations must be redefined. Third, if there is no unbridgeable gap between human and nonhuman species, the traditional moral distinctions must be reassessed. The first and the second question will be discussed together in this and the next section, while the third one is the subject of the last section.

Charles Darwin certainly did not try to downplay the difficulties of his theory or avoid facing its uncomfortable consequences. Morality, like all forms of altruistic behaviour, meant a challenge to his evolutionary theory by natural selection. For if in the struggle for existence only the fittest survive, it is hard to see, how could such altruistic behavioural strategies emerge that, by definition, enhance another's fitness at the expense of the benefactor's own. The most extreme examples of selflessness can be found in insect societies: among

ants, bees, wasps and termites. In such societies the workers seem to serve only the colony's interest rather than their own, as they do not reproduce at all. Darwin readily acknowledged „that this is by far the most special difficulty, which [his] theory has encountered" and at first sight the problem seemed to him "insuperable" and potentially "fatal" to the whole system.[1] However, in the *The Origin of Species* (1859) Darwin solved the quandary by his own principles. According to his explanation, natural selection favours those groups in which sterile casts are present and thus the degree of labour division is high. During the struggle for existence these groups outcompete the more egalitarian ones. In such cases natural selection operates on groups instead of individuals.

The similar group selection logic can be applied to social mammals, and Darwin did not hesitate to apply it to them, including human societies, in his *The Descent of Man* (1871). Altruistic behaviour in this case means instinct-driven acts to help group members. The most significant social instinct is sympathy. „In however complex a manner this feeling may have originated, as it is one of high importance to all those animals which aid and defend one another, it will have been increased through natural selection; for those communities, which included the greatest number of the most sympathetic members, would flourish best, and rear the greatest number of offspring."[2]

Social emotions are thus indispensable conditions to the evolution of sociability. However, they are necessary but not sufficient conditions to the sophisticated social institutions that are present even in the most primitive human societies. Tight social bounds including moral obligations and sanctions cannot emerge without a considerable development in intelligence. Without improved memory, language and capability of abstract thinking morality cannot take place, and this is the very reason why we cannot call a single animal species moral, though we can call many of them social. Darwin thought that morality was "the most noble of the attributes of man" and "of all the differences between man and the lower animals, the moral sense and consciousness is by far the most important."[3] Darwin, remaining faithful to his naturalism, was thus able to retain a boundary between humans and animals and still argue for the continuity of the evolutionary process that led from social animals to human societies.

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[1] Charles Darwin, *The Origin of Species.* London: Penguin, 1968, p. 262, 257.
[2] Charles Darwin, *The Descent of Man and Selection in Relation to Sex*. London: John Murray, 1871/1906, p. 162.
[3] Ibid. p.148.

Darwin speaks of social instincts but it is obvious that what he has in mind is some kind of moral psychology similar to that of David Hume and Adam Smith. In footnotes he directly refers to both philosophers. The aim of Hume's philosophical project was to extend the empirical method to the moral sciences. Thus he grounded his moral philosophy in the observation of human nature itself, breaking with the rationalistic metaphysics of the natural right tradition. In his *Treatise of Human Nature* (1739-40), Hume maintained that our moral distinctions, i. e. vice and virtue, are not discoverable by reason but they are perceptions, more concretely, they spring from our moral sense. Thus, morality "is more properly felt than judg'd of." Moral sense is a universal faculty of human beings so it is suitable for empirical observations. If we search for virtue for example, we should look after characters that induce in men a feeling of "satisfaction of a particular kind." There is nothing more in judging a deed or a character virtuous than having this particular feeling. However, Hume adds that beyond this we cannot go. "The very *feeling* constitutes our praise or admiration. We go no farther; nor do we enquire into the cause of this satisfaction."[1]

In fact, Darwin did go beyond this. He gave an evolutionary account for the origin of the feelings from which morality and thus human societies derive. Sympathy is a feeling that was selected for, as the selfless assistance and cooperation it involved promoted the tribe's interests. Praise and blame, being nothing but a certain pleasure or uneasiness we unavoidably feel when we encounter acts that, whether directly or indirectly, support or violate social cohesion, were similarly selected for. Thus, Darwin gave an historical dimension to the attributes that Hume could not help but ascribe to the universal, and presumably eternal, human nature. Following his scepticism about the limited knowledge of man rather than his Christian orthodoxy, Hume declared of moral blame and approbation: "The standard of the one, being founded on the nature of things, is eternal and inflexible, even by the will of the Supreme Being: the standard of the other arising from the eternal frame and constitution of animals, is ultimately derived from that Supreme Will, which bestowed on each being its peculiar nature, and arranged the several classes and orders of existence."[2] Darwin, in perfect harmony with the rules of his science and principles of natural history, could take

[1] David Hume, *A Treatise of Human Nature*. Ed. David Fate Norton, Mary J.Norton, Oxford – New York: Oxford University Press, 2000, pp. 302-303.
[2] David Hume, *An Enquiry Concerning the Principles of Morals*. New York: Library of the Liberal Arts, 1751/1957, Appendix I.

a decisive step farther. Hume, a self-appointed naturalist of morality, would have surely applauded him.

Not unlike Hume, Darwin suggested that morality had been expanding throughout history. Gentle feelings towards each other first appeared in mother-child relationships then in families and small groups of kin. "As man advances in civilization, and small tribes are united into larger communities, the simplest reason would tell each individual that he ought to extend his social instincts and sympathies to all members of the same nation, though personally unknown to him. This point being once reached, there is only an artificial barrier to prevent his sympathies extending to men of all nations and races. If indeed such men are separated from him by great differences in appearance or habits, experience unfortunately shows us how long it is, before we look at them as our fellow-creatures. Sympathy beyond the confines of man, that is, humanity to the lower animals, seems to be one of the latest moral acquisitions."[1] The last and "noblest" stage of the moral progress is when we include "all sentient beings" in the moral sphere. Humans are unique in that they are capable to extend their benevolence through all racial and specific boundaries. Hence the human evolution of ethics leads to and culminates in the moral consideration of each and every sentient fellow-creature.

We have seen that Darwin accounted for morality, a unique human characteristic, without injury to the general principles of evolution. For him ethics was a product of natural selection, an adaptive trait that helped our ancestors to survive.[2] But this evolution of ethics was by no means a justification of some or other ethical imperatives. Darwin was sometimes ambiguous about the value of the struggle for existence, but he never raised it to the level of an unconditional moral norm. For him, nature was certainly value-laden and in one sense the primary source of immense aesthetic beauty and moral excellence. From this aspect he was much closer to Humboldt and the romantic biologists than to Descartes or the positivists.[3] However, he never attempted to prove that moral laws can be derived from, or identical to, the laws of

[1] Darwin, *The Descent of Man,* p.188.

[2] However, not everybody shared this view of evolution of ethics. Such committed Darwinists as Thomas Huxley and Alfred Wallace, denied that evolution had anything to do with morality.

[3] Robert J. Richards, *The Romantic Conception of Life: Science and Philosophy in the Age of Goethe,* Chicago – London: University of Chicago Press, 2002, pp. 533-540.

nature, that is, he did not try to establish a normative ethic on the ground of his theory.

This was not so with Herbert Spencer (1820-1903). He was an inspirer of the Darwinian evolution by natural selection, and was in turn deeply inspired by it. He belonged to a generation of British and American social scientists who thought that Darwinism was the panacea for all the shortcomings and failings of the social sciences. Spencer himself shared with Darwin the idea of the evolution of ethics and similarly to him he distinguished two stages in this development. In early history the moral codes consisted of militant virtues such as courage, fidelity and self-sacrifice. With economic development these archaic values had been substituted for cooperation, frugality, invention and other industrial virtues. Hence the economic and social advancement mitigates the crude struggle for existence and more humane forms of competition, first of all free trade, become predominant. Thus far, it sounds very Darwinian. Nevertheless, according to Spencer, the struggle must not cease to operate because it is a central assumption of his entire metaphysics. For Spencer evolution is a cosmic process that permeates the whole universe, organic and inorganic. In fact, evolution is a deductive principle in Spencerian philosophy, a fundamental law that governs both natural and social world. Spencerian materialism excludes everything that does not take its origin in this unifying law. When Spencer declares that the law of evolution governs everything, he does not simply state a fact. He also means that the law of evolution *ought to* govern everything. Thus the decisive step from the evolution of ethics to the ethics of evolution has been taken.

From the operation of the living world the norms of the social life can be extracted. The laws of nature must not be violated. It follows that every artificial intervention in the course of nature is harmful, unjust and morally illegitimate. “Is it not manifest that there must exist in our midst an immense amount of misery which is the normal result of misconduct and ought not to be dissociated from it?” The poor, the idle, the sick and the criminal have to bear all the consequences of their asocial, unproductive behaviour. Social reformers naively think that the mitigation of the sufferings of the lowest ranks is a moral obligation and unable to see that to encourage their reproduction by aids and support is the worst possible policy, because such a socially sensitive community will inevitably punish its vanguard and promote the multiplication of the

good-for-nothings, thereby destining itself for unavoidable social, economical, cultural and biological decay.[1]

Spencer was an ideologue of *laissez-faire* liberalism and meritocratic individualism, and in the ever more popular Darwinism he found an effective and authoritative support for his ethical norms. He was however a pacifist and an anti-imperialist, and the fact that most Social Darwinists were indeed committed militarists shows that the detachment of evolution from its original descriptive-explanatory background turned it into a suspiciously versatile ideological weapon. The notion of the struggle for existence was vulgarized into the favourite *topos* of imperialist rhetoric and Darwinian metaphors were shamelessly and consciously exploited in a wide array of nationalist pamphlets from Ernst Haeckel to Adolf Hitler. It is enough to quote just one characteristic manifestation of aggressive militarism capitalizing on Darwinism. General Friedrich von Bernhardi wrote in *Deutschland und der Nächste Krieg* (1912): "[war] is not merely a necessary element in the life of nations but an indispensable factor of culture, in which a truly civilized nation finds the highest expression of strength and vitality (...) War gives a biologically just decision, since its decisions rest on the very nature of things. (...) It is not only a biological law, but a moral obligation, and, as such, an indispensable factor in civilization."[2] Thus many recognized that the logic of the ethics of evolution was a suitable way to identify their pre-existent value choices with the "ways of nature" and pretend that these value choices were grounded in the firmest scientific principles imaginable. George Edward Moore's criticism whereby he pointed out the weakness and logical fallacies underlying the Spencerian arguments was right insofar as he drew attention to how Social Darwinists ignored the fact/value dichotomy. Of course, later development in analytical moral philosophy challenged the very notion of this dichotomy, nevertheless it is still true that Social Darwinists had been content with dogmatically denying the distinction when, without

[1] Mike Hawkins, *Social Darwinism in European and American Thought, 1860-1945*. Cambridge: Cambridge University Press, 1997, pp. 89-103.

[2] Richard Hofstadter, Social Darwinism in American Thought, Boston: Beacon Press, 1955, p. 197. Some authors trace the genealogy of early 20th century militarism and Nazism back to *The Origin of Species*. It is a highly controversial issue and the majority of historians reject it, but see Richard Weikart, *From Darwin to Hitler: Evolutionary Ethics, Eugenics, and Racism in Germany*. New York: Palgrave MacMillan, 2004. Hawkins in *Social Darwinism* holds a more moderate view, he nevertheless calls Darwin a Social Darwinist.

any argumentation, they simply identified values and norms with purported facts about the laws of nature.

Sociobiology

Theoretical and empirical evolutionary research has been given considerable impetus by the modern synthesis of Darwinian evolutionary biology and genetics from the mid-20th century onwards. After World War II, however, the applications of evolutionary biology to traditional social scientific issues was suspect at best. Perhaps this explains why research into certain politically sensitive fields was pursued by few and remained unpopular for some time. The advent of sociobiology changed the scene, but its enthusiastic advocates immediately met the protestations of its similarly resolute opponents.

Much of Darwin's arguments have been preserved, although individual selection and later gene selection eclipsed group selection. William D. Hamilton proved that even gene selection allows altruistic strategies to spread in populations.[1] If we assume that there are genes that can contribute to, or even cause, altruistic behaviour, then an altruistic individual promoting the welfare and fitness of a close kin, probably promotes the spreading of its own genes (i.e. identical copies of its own genes, including the altruistic one) too. This probability is proportional to the degree of relatedness. If the benefactor's cost is lower than the beneficiary's profit weighed by the degree of relatedness, altruism persists in the population. The benefactor is promoting not his own fitness but its genes' *inclusive fitness*.

Kin selection leaves the favours occurring between unrelated partners unexplained. Although cooperation and selflessness is most likely between relatives, examples of altruism frequently take place in the nonhuman species. According to the now widely accepted explanation first outlined by Robert Trivers in 1971, reciprocal altruism is an evolutionarily feasible strategy, if the partners are in frequent contact with each other, can recognize each other, and have advanced memory.[2] In this case a potential free rider cannot exploit the others' benevolence and increase its fitness at their expense, because ingratitude will be punished and made costly by the victim and perhaps the whole community.

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[1] William D. Hamilton, "The genetical evolution of social behaviour", *Journal of Theoretical Biology* 7 (1964): 1-32.

[2] Robert Trivers, "The evolution of reciprocal altruism", *Quaterly Review of Biology* 46 (1971): 35-57.

These new insights inspired ambitious projects aiming to integrate human social phenomena fully into biology. The results discussed thus far were confined to the description of how moral behaviour can appear in the evolutionary process. Edward O. Wilson, the godfather and founder of sociobiology bestowed a more serious task on the newborn discipline. He does not hedge but boldly states in the very first sentences of his monumental *Sociobiology: A New Synthesis* (1975): "The biologist, who is concerned with questions of physiology and evolutionary history, realizes that self-knowledge is constrained and shaped by the emotional centres in the hypothalamus and limbic system of the brain. These centres flood our consciousness with all the emotions – hate, love, guilt, fear, and others – that are consulted by ethical philosophers who wish to intuit the standards of good and evil. (...) [The hypothalamus and limbic system] evolved by natural selection. That simple biological statement must be pursued to explain ethics and ethical philosophers, (...) in all depths."[1] In the concluding chapter he explicitly advises to replace normative ethics with biology: "Scientists and humanists should consider together that the time has come for ethics to be removed temporarily from the hands of philosophers and biologicized."[2] Wilson is convinced that the increasing neurophysiological data on emotions, decision making and the like is ethically relevant. Although his often equivocal and self-contradictory ethical remarks are scattered throughout his numerous books, Wilson seems to be quite consistently oblivious of the fact that normativity is a rather specific feature of ethics. Ethics, in order to become a real science, must focus on neurophysiology and genetics. In his *Consilience* (1998), Wilson gives his readers a list of his expectations from the ideally scientific, biologicized ethic that is to replace the philosophers' groundless assumptions: 1. definitions of moral feelings, 2. genetics of moral feelings, 3. ontogeny of moral behaviour, 4. evolutionary history of moral feelings. In this list we look for normativity in vain. In fact, Wilson hints at this aspect of ethical discourse when he remarks that in the light of this new information, the wisest application of moral feelings and the ranking of moral instincts must be possible but he does not go into details.[3] Whilst 23 years earlier in *Sociobiology* he had wanted to

[1] Edward O. Wilson, *Sociobiology: The New Synthesis.* 25th Anniversary Edition. Cambridge, MA – London: Harvard University Press, 1975/2000, p. 3.
[2] Ibid. p. 562.
[3] Edward O. Wilson, *Consilience: The Unity of Knowledge.* New York: Alfred O. Knopf, 1998.

biologicize ethics *en bloc*, in *Consilience* he broke up the discussion at the point where real moral discourse begins.

Sometimes Wilson seems to advocate an ethic of evolution. In *On Human Nature* (1978), from sexual reproduction and the entailing genetic diversity and uniqueness he deduces the imperative to protect and preserve "the gene pool as a contingent primary value until such time as an almost unimaginably greater knowledge of human heredity provides us with the option of a democratically contrived eugenics."[1] The implicit logic behind this assertion is that because evolution yields diversity, therefore diversity is good and to be protected. This is not a far cry from Social Darwinism. At other times Wilson tries to identify "good" with "better adapted". He thinks that ethnocentrism and xenophobia, which he holds morally repugnant, are the "dark side" of human nature, which is in this aspect maladaptive. This is a clear example of the justification of a pre-existent moral belief by appealing to evolution. This reasoning is not only Social Darwinian but it is also contrary to Darwin's words, who says that xenophobia and slavery, however detestable they are, are useful adaptations among tribal people.[2]

Wilson also takes up a thread that is very popular with certain sociobiologists and is implicit in his above quoted emphasis on the evolved nature of the brain: "The brain is a product of evolution. Human behavior – like the deepest capacities for emotional response which drive and guide it – is a circuitous technique by which human genetic material has been and will be kept intact. Morality has no other demonstrable ultimate function."[3] Thus we may farther conclude that morality is not what it seems to be. Its secret and essential nature is revealed by biology. Only sentimental philosophers do think that morality belongs to our better self – in reality it belongs to our worst. Another renowned biologist, Richard Alexander adds that "»what this greatest revolution of the century« tells us is that, despite our intuitions, there is not a shred of evidence to support this view of beneficence, and the great deal of convincing theory suggests that any such view [that there are genuinely altruistic acts among humans] will eventually judged false."[4] Michael Ruse is probably the most straightforward: "Morality is no more than a

[1] Edward O. Wilson, *On Human Nature.* Cambridge, MA – London: Harvard University Press, 1978, p. 198.
[2] Darwin, *The Descent of Man,* pp. 178-181.
[3] Wilson, *On Human Nature,* p. 167.
[4] Richard Alexander, *The Evolution of Moral Systems*. New York: Aldine de Gruyter, 1987, p. 3.

collective illusion fobbed off on us by our genes for reproductive ends."[1] According to these opinions, morality is a delusion of our genes, so much so that we are inherently and incurably selfish even when we are deeply convinced of our genuine generosity and self-denial. Of course, these authors reject the idea that this conclusion exempts us from our obligations. They nevertheless keep asserting that there is no justification for our conduct beyond the realisation that we have been moulded by selection and made up in a way that makes us promote our genes' interests all the time, sometimes by overt selfishness, sometimes with pretended and self-deceiving selflessness. Ruse, anticipating obvioius objections, claims: "[I]f as is the case I think that morality is truly binding on me – and even the fact that I can recognize its base does not alter the psychological feeling that I have – I am led to continue in moral ways."[2]

The chief flaw in this reasoning is twofold. First, it attributes the metaphorical selfishness of the genes to the non-metaphorical intention of the actor. This identification is simply unwarranted. Even if we acknowledge that we are vehicles of our genes contrived to spread them, we cannot conclude that we are therefore selfish all the time. Genetic "selfishness" cannot be confused with psychological selfishness. Second, this view renders moral dilemmas and ethical discourse on the right way of conduct pointless. For if we do not have any possibility of justification other than "we evolved so, period", then whenever our feelings leave us in doubt we do not have any higher court of appeal, rational discourse for instance, to turn to. For Ruse, even after recognizing morality's real nature, morality remains unproblematic – I cannot help but "continue in moral ways." After all, Richard Dawkins, the leading populizer of the selfish gene theme, has a fairer stance toward moral justification. He writes: "I am not advocating a morality based on evolution. I am saying how things evolved. I am not saying how we humans morally ought to behave. My own feeling is that a human society based simply on the gene's law of universal ruthless selfishness would be a very nasty society in which to live. (...) Let us try to *teach* generosity and altruism, because we born selfish. Let us try to understand what our selfish genes are up to, because we then have at least the chance to upset their designs,

[1] Michael Ruse, "The New Evolutionary Ethics", In: Matthew H. Nitecki, Doris V. Nitecki (eds.): *Evolutionary Ethics*. New York: State University of New York Press, 1993, p. 151.
[2] Ibid., p. 153.

something that no other species has ever aspired to."[1] We have therefore to revolt against the genes. What norms must lead us in its fight against selfishness? Whence come our guiding principles that govern the establishment of a society not so nasty? Dawkins says nothing about it, but certainly not from biology.[2]

Darwinism is silent about moral conduct; morality is a deception of our genes, evolution and adaptation is a measure of right and evil; moral physiology paves the way for moral philosophy; ethics is no more than its evolutionary history and physiological backdrop – just a contention from the moral reformer Wilson and his like-minded colleagues. Perhaps biology is ethics' salvation, but up until now, the former could only introduce and facilitate confusion in the latter's realm.

Environmental ethics and animal rights

As we saw, Darwin conceived of moral development as a continuous extension of respect and fellow feeling towards all sentient beings. This transcendence of the animal/human boundary "seems to be one of the latest moral acquisitions."

For Darwin, this acknowledgement of the moral standing of animals is in the closest relationship with the notion of common origin Darwin had had in mind after his voyage with the *Beagle* in the 1830s. As early as 1837, he wrote down in one of his notebooks that "[i]f we choose to let conjecture run wild, then animals, our fellow brethren in pain, diseases, death, suffering and famine – our slaves in the most laborious works, our companions in our amusements – they may partake of our origin in one common ancestor – we may be all netted together."[3] But it is clear, that the common experience of pain and suffering was in itself enough ground on which to argue for the moral considerability of animals. Indeed, such pre-Darwinian authors as John Oswald, or the forerunner of animal rights movement, Jeremy Bentham demanded respect for sentient beings precisely upon this consideration. Darwinism provided an additional powerful argument for the emerging movement's case. From the present animal rightist stance, however, Darwin was unpardonably indulgent when in 1875, before the Royal Commission on Vivisection,

[1] Richard Dawkins, *The Selfish Gene.* 30th Anniversary edition. Oxford: Oxford University Press, 1976/2006, p. 3.

[2] Dawkins's opinion is very similar to another Darwinian, colleague and friend of Darwin, Thomas Huxley. Both have been criticized for not being Darwinian enough.

[3] Cited in Worster, *Nature's Economy*, p. 180.

he protested against any restraints on medical research, however did he deplore those who conducted experiments on animals for "mere damnable curiosity."[1]

And the whole animal rightist stance became unpardonably parochial according to those who, with the growing awareness of global biodiversity loss and the forthcoming ecological crisis, are no more content with claiming rights to sentient beings but urge instead to protect and respect ecosystems, including trees, soil, air and water.

Of course, environmental thinkers offer a wide selection of arguments to support their case. Only arguments from evolution will be discussed below. The notion of ethical evolution was introduced already to environmental thinking by Aldo Leopold (1887-1948), the father of environmentalism. In his famous *Land Ethic* (1949) he gives the most tangible and concise summary of the evolution of ethics which he relates immediately to his land ethic: "An ethic, ecologically, is a limitation on freedom of action in the struggle of existence. An ethic, philosophically, is a differentiation of social from anti-social conduct.(...) All ethics so far evolved rest upon a single premise: that the individual is a member of a community of independent parts. (...) The land ethic simply enlarges the boundaries of the community to include soils, waters, plants and animals, or collectively: the land."[2] Leopold's assertion is that in order to survive, man has always needed an ethic that has always played a role of a kind of community instinct. Conditions of survival have been constantly changing, and at present the inclusion of land into ethics is required. This new ethical imperative fits well into the evolutionary trajectory of ethics. Leopold describes this process and suggests to take a step further. His land ethic is a serious warning to alter our attitudes toward the entire nature supported by evolutionary history, rather than an evolutionary justification of his new ethic.[3]

Followers of Leopold, however, often argue, somewhat in the spirit of Social Darwinism and Wilson, that evolution is good and valuable, therefore to hinder this process is morally evil. The way of nature is therefore a model to follow in our conduct. For example,

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[1] Ibid., p. 181.

[2] Aldo Leopold, "The Land Ethic", In: Michael E. Zimmerman et al. (eds.): *Environmetal Philsophy: From Animal Rights to Radical Ecology,* Upper Saddle River, NJ: Pearson Prentice Hall, 1949/2005: 102-115, p. 102.

[3] For a different interpretation, see J. Baird Callicott, "The Land Ethic", In: Dale Jamieson (ed.): *Environmental Philosophy*, Malden, MA – Oxford – Melbourne: Blackwell Callicott, 2001.

Holmes Rolston III argues: "The right to life, biologically speaking, is an adaptive fit that is right for life, that survives over millennia, and this generates at least a presumption that species in niche are good right where they are, and therefore that it is right for humans let them be, to let them evolve. (...) The appropriate survival unit is the appropriate unit of moral concern. This world be following nature specifically."[1]

However, there is another line of reasoning in Rolston that makes use of evolutionary theory, but with a critical reflection to fact/value dichotomy. Rolston argues that living organisms are inherently telic, each having and defending its "*good-of-its-kind*".[2] This teleological conception of organisms is not opposed by evolutionary theory, so much the reverse: adaptations help to achieve the organism's specific ends and thereby maintain its proper function. Function and teleology do not make sense without the organism's wider environment: "Things do not have their separate natures merely in and for themselves, but they face outward and co-fit into broader natures."[3] Each living creature is a normative system on its own right, with its own purposes, needs and demands. Of course, this normativity is not conscious and therefore not moral. Only humans are moral normative systems, who can and ought to perceive that the whole biosphere is permeated with interests, shaped by and shaping the selective milieu. What humans share with the rest of creation is this outward-facing, dependent, inherently teleological nature. What is uniquely human is the capacity to recognize this common dependency, reflect on it and act upon it.

Rolston concludes that "an *ought* is not so much derived from an *is* as discovered simultaneously with it."[4] This is perfectly concordant to certain currents of modern moral philosophy. Hilary Putnam, totally independently from debates over the animal/human boundary or environmental concerns, calls to the appreciation of "the ways in which factual description and valuation can and must be *entangled*."[5] What he advocates is an ethic that contains Aristotelian and Kantian elements, an

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[1] Holmes Rolston III, "Challenges in Environmental Ethics", In: Michael E. Zimmerman et al. (eds.): *Environmetal Philsophy: From Animal Rights to Radical Ecology,* Upper Saddle River, NJ: Pearson Prentice Hall, 2005: 82-101, pp. 92-93.
[2] Ibid., p. 89.
[3] Ibid., p. 100.
[4] Ibid., p. 101.
[5] Hilary Putnam, *The Collapse of the Fact/Value Dichotomy and other Essays.* Cambridge, MA – London: Harvard University Press, 2002, p. 27.

ethic, I should add, that respects both teleology common with living organisms, and autonomous practical reason unique to humans. The elaboration of an ethic like this would deserve a separate discussion. For our present purpose the morale is already obvious: A biologically sensitive, multidisciplinary moral philosophy may succeed where its predecessors failed. Scientists from all fields must nonetheless be mindful that no other science can spare us the laborious way to an up-to-date, modern ethical theory, and in order to achieve this end, moral philosophers must sometimes see beyond their academic boundaries.