The discontinuity between humans and animals in Buffon's Natural history

Gustavo Caponi

Researcher, CNPq; professor, Departamento de Filosofia/
Universidade Federal de Santa Catarina.
Campus Universitário Trindade
Caixa Postal 476
88010-970 – Florianópolis – SC – Brasil

gustavoandrescaponi@gmail.com

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Abstract

According to Buffon, the difference between man's cognitive abilities and those of other animals could not be attributed to natural causes. Noting these differences necessarily meant accepting that the Creator had endowed man with an immaterial soul that was unparalleled among animals. This article seeks to show that Buffon's abandonment of naturalism was not the result of a theological premise but of the impossibility of reconciling the presumed heterogeneity between animal and human cognitive faculties with the materialist explanation of the origin of species that Buffon outlined in the course of his writings. If man is assumed to be an exceptional being, the origin of the human race must also be seen as miraculous.

Keywords: Georges-Louis Leclerc, Comte de Buffon (1707-1788); animality; God; humanity; materialism.

Dining with Buffon

In September 1785, Buffon received a visit at his home in Montbard, near Dijon, from Marie-Jean Hérault de Séchelles, a well-known young lawyer with revolutionary ideas, who still had ties to the court and a reputation for being something of a libertine (Varloot, 1984, p.287). That visit, which lasted several days, led to a book: *Visite* à *Buffon,* (Hérault de Séchelles, 1984), published anonymously that same year (Varloot, 1984, p.287). The work describes the domestic routine of the intendant of the Jardin Royal des Plantes; and it also recounts various statements made by the host during the evening discussions that marked the visit (Hérault de Séchelles, 1984, p.288).[1] Among them, there is one particularly striking statement referring to the place of the divine in Buffon's reflections as a naturalist. According to Hérault de Séchelles (p.293), the author of the monumental *Histoire naturelle générale et particulière* confessed to him, "I always alluded to the Creator; but one has to ignore that word and simply replace it with the power of Nature, which is the result of two great laws: attraction and repulsion."[2]

Hérault de Séchelles' account may have been biased by his own convictions. It is also possible that the count, knowing his young admirer's philosophical bent, may have simply exaggerated his materialist beliefs simply to make the dinner go more smoothly (Hérault de Séchelles, 1984, p.290). Under such circumstances, this type of innocent rhetorical exaggeration is not infrequent. We must not forget that, as Kant (1991, §29) would say some years later, "drink unlocks the tongue;" and thoughts can run away with speech. What is clear is that Buffon's work is not lacking in passages in which that daring substitution is not possible; and those passages are, I believe, almost exclusively linked to the difference between mankind and other animals.

That difference, according to Buffon, could not be explained merely by the mediation of natural causes: the only possible conclusion was that the Creator had endowed mankind with an immaterial soul that was unparalleled among animals, and what I wish to do in this article is to identify the reason for that failure or self-limiting element in Buffon's naturalism. I will argue that it does not stem from a theological premise, but from the impossibility of reconciling the supposed heterogeneity between animal and human cognitive faculties with the materialist explanation of the origin of species that Buffon outlined over the course of his writings. If man is assumed to be an exception, mankind's origin must also be seen as exceptional: there is no way around that. If the peculiarities of our species, or genus, are unilaterally strengthened, their link to the rest of nature will disappear from view.

The origin of species according to Buffon

Apart from that issue, it is true that almost the whole of the *Histoire naturelle générale et particulière* can be seen as confirming Hérault de Séchelles' report. We might even assume that, occasionally, Buffon only cites God in a purely rhetorical way (Martínez, 1992, p.567). As the author's prestige and political influence became established, his occasional references to the Creator became less frequent and also less easily interpretable as metaphors for natural laws. For example, not long after the church censured him in 1751 for his thesis on the

history of the Earth and the planets (Buffon, 1749b),[3] Buffon (1868, p.35) began to distance himself from the transformist assumption that he himself had let slip, saying that "every species came fully formed from the hands of the Creator" (Caponi, 2010, p.69-72);[4] but, ten years later, in *De la dégénération des animaux* (Buffon, 1766, p.311-374), he began to formulate a materialist theory on the origin of species (Caponi, 2010, p.127-128), the last portions of which can be found in *Les époques de la nature* (Buffon, 1988).

According to that theory, there is a group of original species – some of which are already extinct, as in the case of the mammoth (Buffon, 1988, p.144) – which nature had generated, entirely shaped, in successive surges (p.77, 142).[5] And there are other species that are derived, or degenerated, forms of some of those original species (Buffon, 1766, p.360-363).[6] Although not from all of them; because, among these original species, there are 14 that Buffon (p.335-356) considers "noble" or major (p.29),[7] and immune to degeneration. The elephant, for example, is not a degenerate mammoth,[8] and its case is different from that of the puma, which is actually a degenerate form of panther (p.369), or the donkey, which, as one might suspect, is a horse that has degenerated due to the effects of the climate and food over many generations (p.335).

This theory, of course, proposes things that are inconceivable to us, such as the spontaneous generation of mammoths, elephants or horses (Roger, 1983, p.165; Caponi, 2010, p.107); and the idea of degeneration that goes with it (Aréchiga, 1999) assumes a theory of generation and inheritance that we know to be completely false (Caponi, 2010, p.41; Galfione, 2013, p.823). But even so, all of this pointed to the possibility of explaining the origin of species and of life without relying on anything beyond purely natural laws (Caponi, 2010, p.139); and this applied even to the concept of the "noble species" itself (Buffon, 2007e, p.646; 1765, p.X).[9]

Buffon had, in fact, outlined an explanation for such phenomena in which, *prima facie*, the only function of the divine was that of great law-maker who, once he had created the world and laid down its laws, could let the cosmic machine run by itself, with no need for any intervention on his part.[10] In his *Première vue de la nature*, Buffon (1764, p.III) said that "Nature is that system of laws established by the Creator;" and he added that Nature has the power of "changing, destroying, unfolding, renewing, [and] producing" unaided, all the bodies and phenomena in the world, including organized beings (p.IV). His theory on the origin of life and the species was consistent with that premise; and to a certain extent, not even his theses on the human soul departed from that aspect of his thought. Mankind's animal nature, to which the soul was added, fitted this theory perfectly.

For us, however, the most reasonable explanation for the origin of species is evolutionism (Caponi, 2010, p.110). Thus, even though we also know it to be false, we find Lamarck's theory of the spontaneous generation of infusoria, followed by evolutionary processes of increasing complexity (Lamarck, 1802), to be much more plausible: it is closer to the Darwinist perspectives accepted nowadays (Caponi, 2010, p.139). But Buffon (1766, p.368-373) had his reasons for ruling out that alternative (Caponi, 2010, p.119); and it is also worth pointing out that even in the first half of the nineteenth century (Rupke, 2009, p.147; Caponi, 2014, p.29), right up until the threshold of the Darwinist revolution (Rupke, 2010, p.150; Caponi, 2014, p.29), a view like Buffon's on the origin of life and the species was still considered plausible (Peisse, 1844, p.480-481).

Before Darwin, as Nicolaas Rupke (2009, p.147) has noted, somewhat inaccurately, "creation or evolution" were not the only views (Caponi, 2014, p.32-33): the "theory of authogenesis," which is the name given by Rupke (2009, p.147) to the theory of an abrupt origin for complex species like elephants or lions, also had its proponents (Caponi, 2014, p.27). Among them were Pierre Cabanis (1844, p.480);[11] Jean-Claude Delamétherie (1805, p.161);[12] Herman Burmeister;[13] and even Prosper Lucas (1847, p.22). Lyell himself (1832, p.179) came around to suggesting it in the second volume of his *Principles of geology* (Ruse, 1983, p.107; Alsina, 2006, p.191).

But regardless of the plausibility attributed to this theory in the eighteenth and even the first half of the nineteenth century, the fact is that Buffon refused to resort to it to explain the origin of mankind; or, to be more precise, the fact is that Buffon could not resort to it to explain the origin of what he considered to be specifically human characteristics. As I pointed out at the beginning, his ideas on the differences between the cognitive faculties of other animals and those of human beings did not give him much leeway to do so. As Daniel Dennett (1996, p.74-75) would argue, if a great gulf is established between "man and beast," it will always be necessary to posit a "skyhook," [a kind of *deus ex machina*], to explain the emergence of characteristics that we believe to be unique to human beings.

The human body and the simian body

In *De la manière d'étudier et de traiter l'historie naturelle*, the opening section in his *Histoire naturelle générale et particulière*, Buffon (2007a, p.35) stated that "the first truth which issues from this serious examination of nature is a truth which perhaps humbles man. This truth is that he ought to classify himself with the animals, to whom his whole material being connects him;" and this idea is corroborated in *De la nature de l'homme*: in terms of his material, corporeal characteristics, man is an animal (Buffon, 2007b, p.186-187). Besides, in terms of physical morphology, the resemblance between humans and apes is undeniable (Tinland, 1992, p.546): "by dissecting an ape," Buffon goes so far as to say (1766, p.28), "we may learn the anatomy of a man" (Martínez, 1999, p.256; 2002, p.21); and this requires an explanation that Buffon has no qualms about supplying.

But we should not be too hasty in projecting what are ultimately Darwinist ideas onto Buffon's text (Caponi, 2010, p.131-132). For Buffon, the main explanation for "unity of type" does not lie in common descent (p.134). That is the case for families formed by the degeneration of an original species (Buffon, 1766, p.335): to a great extent, the horse, the donkey and the zebra resemble one another because the last two are degenerations of the first (p.335). But that does not apply to the similarity between the horse and the giraffe (Caponi, 2010, p.133): each of these original species is the product of independent processes whereby organic matter was organized (Roger, 1988, p.LXX), and that explains their similarities and their differences (Roger, 1989, p.546; 1993, p.580).

The two species resemble one another primarily because the laws governing the processes of amalgamation of organic matter, the laws responsible for forming the different original species, are always the same (Roger, 1993, p.580). That is what explains the unity of type or composition plan seen in the variety of animal species (Buffon, 1868, p.35-36; 1766,

p.28-29);[14] and the most important differences between those species stem from the different initial conditions in which processes of organization of matter arose, conditions that led to the different forms of life (Buffon, 1775, p.509-510).[15] Degeneration explains the secondary differences within lineages that, in some cases, are produced by it (Caponi, 2010, p.137-138).

To understand the meaning Buffon ascribed to the bodily similarity between humans and apes, we have to situate ourselves within that perspective: the similarity is an extreme case of an overall unity of plan followed by all forms of life (Buffon, 1766, p.28). The human body, Buffon argues in *Nomenclature des singes* (p.32), follows "the common plan fixed by the Creator for all organized beings;" and here the word "Creator" may, in fact, be replaced by "power of Nature:" the human body obeys the same set of laws that shape the body of all animals, including apes. But in this case, we must also avoid resorting to the degeneration theory. The ape realm, according to Buffon (p.368), is made up of three families derived from three different strains: one is the family of all the monkeys in the Old World; the other two are new-world families, sapajous [squirrel monkeys] and tamarins (Roger, 1989, p.435), and mankind does not belong to any of them (Buffon, 1766, p.335).

According to Buffon, monkeys were not degenerate humans, nor were humans a variety of ape (Buffon, 1766, p.30). He believed that mankind was one of the original species: it did not arise from degeneration of any other species (Roger, 1989, p.244), even though the origin of mankind is in fact later than any of the other original species (Buffon, 1988, p.150),[16] even those that we might consider founding lineages of the different monkey families (p.161). But besides being one of the original species, mankind belongs to a group of noble species, which do not degenerate (Buffon, 1766, p.335). In *Variétés dans la espèce humaine*, Buffon (1749a, p.371-530) had recognized that climate and nutrition produced striking differences among the different lineages of human beings; but those differences were not degenerations of the sort that produced the puma from the panther (p.529-530).

In Buffon's logic (1988, p.144), the bodily resemblance between humans and orangutans was similar to the resemblance he perceived between the elephant and the mammoth. From his point of view, this analogy of form did not correspond to a genealogical link either (Caponi, 2010, p.108); but was due to the similar conditions under which each species had emerged and by the fact that the same laws and fundamental forces governed both processes of agglomeration of organic matter (p.152).[17] For Buffon, to sum up, there is no special nexus between men and apes. Mankind is no closer to apes than to any other animal species, and the similarity between them is purely corporal: it does not denote any proximity in cognitive capacities (Martínez, 2009, p.326). Even though apes are physically the most similar animals to us, Buffon argued (1766, p.38), they are not the most intelligent: the elephant, in his view, was much more intelligent than any monkey (p.37), even though our physical resemblance to apes might lead us to think otherwise (p.38).

Animal sensibility and the human soul

> *In the first patio there was a wellhead, and at the bottom, a cistern where a toad lived; it never occurred to [Arredondo] that it was the toad's time, bordering on eternity, that he sought.*[18]
>
> Jorge Luis Borges (1980b, p.526)

According to Buffon (1766, p.30), "the soul, thought, and speech do not depend on the form or the organization of the body." Thus, he claimed (p.32), even though the Hottentot is physically similar to the ape, they are separated by thought and language (Tinland, 1992, p.548; Martínez, 1999, p.259). On this point Buffon also believed (1766, p.32) that the difference between the Hottentot and the most highly-educated civilized man is much less than the enormous difference between an elephant and a worm. All men, Buffon thought (2007b, p.188), from the most savage to the most civilized, are endowed with a capability for thought that is entirely lacking in animals (Roger, 1989, p.326; Martínez, 1999, p.252); and it is that capability that gives them the gift of speech (Buffon, 2007b, p.187-188). It is speech that provides the clearest and most eloquent form of empirical evidence of the difference between man and beast; and Buffon stressed this point in *De la nature de l'homme* (Buffon, 2007b), in his *Discours sur la nature des animaux* (Buffon, 2003), and in the *Nomenclature des singes* of 1766, mentioned earlier.

Buffon did not argue that animals were insensible automatons (Roger, 1989, p.325; Martínez, 1999, p.251). On the contrary, he thought that they were capable of feeling pleasure and pain (Buffon, 2003, p.56), that they had some level of awareness of their current existence (p.64), that they dreamed (p.73), and even that they felt simple passions like fear and affection (p.91). But it is interesting to note that Buffon (p.46) claimed there were some significant differences between humans and animals in terms of the senses (Roger, 1989, p.323; Martínez, 1999, p.248). Buffon (2003, p.63) claimed that while sight and touch were more developed in humans, smell and taste were better developed in animals.

That was not a simple difference between alternative capabilities that had developed differently. There is no analogy here to the differences between bats that cannot see anything, but can hear a great deal, and owls who may not hear so much, but who see extremely well. Far from it; Buffon's distinction (2003, p.46) already proposes a hierarchy. According to him, the senses of smell and taste are most closely linked to appetite, which is why they are keener in animals (p.64). Sight and touch, on the other hand, are more linked to knowledge (p.46); therefore, it is not surprising they should be more developed in men. This is also true of the importance of hearing for speech (p.47).

But it is worth pausing to consider the senses of touch and sight: I believe it is no coincidence that Buffon (2003, p.46) felt that touch was the most important sense for mankind. Indeed, he claimed that it was only through touch that one could "attain any complete and certain intelligence" (Buffon, 2007c, p.302). I say this mindful of the distinction between primary and secondary qualities that philosophy professors always attribute to Locke (O'Connor, 1968); but which, as Edwin Burtt (1925) showed in successive chapters of *The metaphysical foundations of modern physical science*, was perceived and noted in different

ways by all the architects of classical physics. The duality is present in all of them, and primary qualities, in the definition and perception of which sight and touch play a privileged role, are considered the only ones that can be the object of true knowledge, or the ones whose knowledge is most fundamental and certain.

In effect, secondary qualities such as flavor, scent, sound and color have the peculiarity of being perceived by a single sense, whether it be taste, smell, hearing or sight. Flavor is only perceived through taste; scent through smell, sound through hearing and color through sight (Locke, 1939, II, VII, §10). Primary qualities like size, shape, texture, movement, stillness, number and solidity (§9), which are crucial to physical knowledge, may be perceived either by more than one sense, which for humans would always be sight and touch;[19] or by a single sense, touch itself. Buffon considered this the more important of the two senses that, he claimed, were more highly developed in man than in animals. It is now clear that for Buffon, mankind was sensorially better endowed for and predisposed to the development of knowledge; whereas animals were sensorially better endowed for and predisposed to the satisfaction of their appetites.

But that was not, in any case, the really decisive gulf separating the cognitive abilities of mankind and the cognitive abilities of animals. For Buffon, the key lay in the fact that in animals, there was nothing resembling what he called "reflection;" in other words, the ability to distinguish, compare and combine sensations of all types to form new representations. In an argument that was clearly not very far from Descartes', Buffon reduced the cognitive abilities of all animals to an internal sense that was more or less developed, in which all sensations combined mechanically to associate, reinforce or counterbalance one another (Roger, 1989, p.327; Martínez, 1999, p.253).

The difference Buffon establishes between reflection and sensation is not very difficult to explain. The first thing we should note is that, as he understood the distinction, reflection meant the ability to represent to ourselves things perceived or sensed previously (Buffon, 2003, p.69-70). A man sees the face of a woman who seduces him so she can steal his wallet, and later, he remembers it ruefully: he pictures it in his own mind, helping to reconstruct it in an identikit portrait. The woman was also wearing an intense, disturbing, unmistakable and in a sense unforgettable perfume (Buffon, 2003, p.73); but with this other sense, the unhappy man cannot recall it. He cannot conjure it up the way he can picture the face that seduced and humiliated him. Although if he were to smell that perfume again, he would immediately realize that it was unquestionably the scent of his perdition. For the Buffonian animal, we might say, everything is like that perfume, and nothing is like the woman's face.

But whereas the man, if he were to smell that perfume, would once again experience all the anxiety and even shame aroused by that unfortunate incident, when the dog Rin Tin Tin perceives the voice, face and smell of his beloved master Rusty, he recollects all the agreeable sensations associated with that experience (Buffon, 2003, p.68). Rin Tin Tin will wag his tail happily; and the man will likely lose his wallet again. But there will now be an important difference between man and beast. The man, as he succumbs, will associate that unmistakable but unrepresentable perfume with a past situation that he can represent, remember and narrate perfectly, and he will succumb foreseeing some of the consequences of his irresponsible behavior: some of what happened to him in the past may happen again. Rin Tin Tin, on

the other hand, cannot make those associations, because for him all perceptions are equally unrepresentable. Hearing Rusty's voice will not bring him images of past encounters; he will only feel that "his heart swells once more," as hearts might swell at "a scent of wildflowers and alfafa," even if it does not evoke any definite image.

In other words, these ideas about the impossibility of representing a scent to ourselves – which ratify what William Hudson (1893, p.247-251) said about scents and tastes in the last five pages of *Idle days in Patagonia* – do not detract from the evocative power of these sensations. The taste of the famous *madeleine* in *À la recherche du temps perdu* (Proust, 1988, p.46) brings back vivid recollections of a long-forgotten past, even though the flavor itself is unrepresentable. But in addition, a flavor or a scent can help us recover feelings of pleasure, pain, and calm associated with them, or feelings of fear, which are also unrepresentable. According to Buffon, this is what happens with animals: impressions can evoke pleasant or unpleasant sensations for them, but they are beyond any representation. Likewise, a fleeting whiff of cigarette smoke may give us a tempting or undefined sensation of pleasure that we cannot identify, that we do not associate with any representation; but that we may, very vaguely, associate with some "lost time," of carefree enjoyment.

Thus, while Buffon does not deny that animals can associate present impressions with past sensations (Buffon 2003, p.39), he also says that they do not have memories (Roger, 1989, p.324; Martínez, 1999, p.249); and he could have used the same arguments to say that they do not feel *saudades* (longing or melancholy) either. Animals, Buffon argues (2003, p.65-68), are only endowed with an internal sense that makes a present sensation evoke a previous one, bringing it into a present with no gaps, in which there are no representations that refer to the past. Rusty's voice brings Rin Tin Tin pleasure, but he has no representation of Rusty with which to associate it: we must remember that, for him, everything is unrepresentable sensation, like smells and flavors. Thus, he is unable to associate that pleasure with any representation, Rin Tin Tin can only enjoy it as if he were feeling it for the first and last time.

This is perhaps similar, but certainly not identical, to paramnesia, in which a sensation perceived in the present brings back a vivid pleasure from the past, although we are unable to say what it is. Only, in this case, we keep searching for that supposed memory, or representation, which we cannot identify. The Buffonian animal, on the other hand, does not spoil the recollection of a past pleasure afforded by perception of the present: he simply lives it and enjoys it, without diminishing his feeling in a vain effort to recollect a doubtful lost memory. For Buffon, an animal is something like a "sentimental automaton" who only registers the present, knows nothing of his past existence and is unaware of anything in the future. Those are also the limits of his extremely narrow self-awareness: the animal only feels his present existence (Buffon, 2003, p.67).

As with the toad that Borges (1980b) imagines floating in the cistern in Abelino Arredondo's house, the Buffonian animal cannot have any notion of time (Buffon, 2003, p.64-66): he lives in a perpetual present that may even seem like eternity and that covers both sleep and wakefulness equally (Martínez, 1999, p.250-252). Buffon (2003, p.67), as I said earlier, believed that animals had dreams; but he also stated that on waking they do not perceive the difference between the sensations they suffered or enjoyed in the past and those they feel at the moment

of waking (p.79). Thus, their dream images are integrated into the record of their internal sense with the same rights and weight as those perceived while waking (Martínez, 1999, p.251).

It is also important to note that while sensation is purely passive, representation assumes an activity: sensations are passions of sensibility, while representations are products of the soul, generated on the basis of those sensations. Thus, to say that the animal does not create representations is also to claim that he cannot imagine things (Buffon, 2003, p.80) and neither can he represent to himself, as I said earlier, even the most immediate future (p.80). That is why the animal cannot form ideas about the things he perceives. By comparing places where we have felt protected from the blazing sun, human beings gradually form the idea of "shade;" and thus, as we grow and learn, we gradually stop being like little animals and become human (p.82-83). A dog, on the other hand, Buffon tells us (p.79), cannot form an idea like "shade," even when he perceives and is attracted to the shadow in which he experienced coolness the previous afternoon (Martínez, 1999, p.250); much less compare the idea of "shade" with "dryness," "ignorance" and "poverty" to form the idea of "deprivation."

Homo duplex

But this last limitation, the inability to form abstract ideas, also affects the majority of human beings: as Buffon (2003, p.80) acknowledges, the capacity for reflection in the majority of mankind only yields concrete ideas; and the proof he gives of this may not be conclusive, but it is painfully recognizable. Buffon (2003, p.80) says that:

> Were all men equally capable of comparing ideas, of rendering them general, they would equally manifest their genius by new productions, always different from, and sometimes more perfect than those of others; all would enjoy the power of invention, or at least the talents for improvement. This, however, is far from being the case. Reduced to a servile imitation, the generality of men execute nothing but what they see done by others; they only think by memory, and in the same style as others have thought, and their understanding being too confined for invention, they proceed to follow imitation.

Be that as it may, even to develop these routines and even when limited to forming simple, concrete representations, we have to assume that man is endowed with capacities that Buffon believes to be totally lacking in all animals; and that capacity, the capacity for reflection or thought, means that men are endowed with an immaterial soul:[20] a soul that is explicitly characterized as a *souffle divin,* the breath of God (Buffon, 1766, p.32).[21] Buffon (2003, p.81) thus appeals to the idea of *homo duplex* (Roger, 1989, p.330); which is not very far from Cartesian dualism. It had already been introduced in *De la nature de l'homme* (Buffon, 2007b, p.182-3); but it was better articulated in *Discours sur la nature des animaux*. Buffon (2003, p.81) says there:

> The interior man is double, being composed of two principles different in their nature, and contrary in their action. The soul, that principle of all knowledge, is perpetually opposed by another purely material principle. The former is a pure light, accompanied with serenity and peace, a salutary source, whence flow science, reason, and wisdom;

> the latter is a false light, which never shines but in the midst of darkness and hurricane, an impetuous torrent fraught with error and passion.

However, if we are still unclear about man's double-sided nature, we can take a look at the end of that same passage. There we read: "Deprive [mankind] of this divine light and you deface and obscure his being, you render him merely an animal, ignorant of the past, without conception of the future, and barely affectable by the present" (Buffon, 2003, p.118). That exceptional nature of man, which removes him from the rest of nature, is also present in *Nomenclature des singes* (Buffon, 1766, p.33), and lasts through *Les époques de la nature*, where Buffon (1988, p.160) says that "in man, conduct is governed by the mind."

In Buffon's first and second vision of nature, we were told that everything in nature could be explained by four factors or elements: the forces of attraction and repulsion acting on brute bodies, heat, and living organic molecules, which explained the phenomena seen in organized beings (Buffon, 1764, p.IV; 1765, p.XX). And almost all the *Histoire naturelle générale et particulière* was faithful to that idea. But when explaining the difference between mankind and animals, Buffon broke his own rules: he broke his commitment to naturalism, and took us back to theological thought.

He invoked an element outside natural forces and the laws that supposedly governed them, attributing human peculiarity to the direct intervention of a god who was no longer acting merely as a law-maker.[22] The spirit, the soul, is not mere brute matter subjected to the forces of attraction and repulsion, nor is it organic matter amalgamated by heat: it is the "breath of God," and Buffon was forced to think of it this way. He had no alternative. If the corporeal nature of man, which was produced by the same matter and the same laws that produced the corporeal nature of other animals, is imbued with and subject to a principle that is totally absent in any other living being, that exceptionality must obey something beyond all matter. Otherwise, it would be very difficult to explain how the internal sense common to all animals could be so incapable of producing anything remotely resembling the capacity for thought.

As we saw, the unity of bodily type, which, Buffon tells us (2003, p.81), includes the capacity for sensation, can be explained by the subjection of all organized bodies to the same laws of conformation, which do not exclude the forces of attraction and repulsion that also govern brute bodies. And if human thought bears no analogy to the impoverished sensibility of animals, its origin must be sought beyond all those laws; in other words, we must seek it outside nature, in the very divinity that created the matter of the world and instituted the laws that govern its movements and transformations. Buffon, in short, postulated an insurmountable gap between man and animals; and that obliged him to betray his own naturalist beliefs. He had to invoke a Creator whose name could no longer be supplanted by referring to nature.

Final considerations

In a sense, Buffon's treatment of "animal subjectivity" is irreproachable. Buffon assumes a deflationist point of view, faithful to "Occam's razor:" he attempts to explain animal behavior

based on the poorest, simplest possible "life of the mind." It may be, as I, in fact, am inclined to believe, that the developments in primatology (Cheney, Seyfarth, 2007) and cognitive ethology (Allen, Bekoff, 1997) do not support those conclusions, showing us that the limited cognitive capabilities that Buffon attributes to other animal species are entirely inadequate to explain not just the behaviors of a chimpanzee or a dog, but even those of an octopus or an iguana. But that, I think, does not help us understand the abandonment of naturalism implied in the idea of *homo duplex*: Buffon thought he had achieved an adequate explanation. Buffon's problem was a different one, which I pointed out in the beginning: postulating a very great gap between mankind and other animals will always oblige us to resort to some kind of "skyhook" to explain the implied leap. What "natura non da," heaven provides.

History provides no lessons, but it does promote reflection: if we want to stay within the framework of naturalism, we will have to accept that every hominid, or human characteristic – whether corporeal, cognitive or emotional – can only be a variant, perhaps an accentuation, of a characteristic attributable to a non-human ancestor (Caponi, 2012, p.183). Therefore, before asking what separates us from our ancestors, we have to determine what similarities there are between us; only then shall we understand our peculiarity as being merely the rather sudden and pronounced deviation of a "unity of type" that has been duly identified. At least in this case, the difference must always be viewed against a horizon of similarity. That is what Buffon failed to do; and that is what Darwin (1870; 1872) set out to do, showing that the morphological "unity of type" that linked us to our non-human ancestors was no more pronounced than the cognitive and emotional "unity of type." Darwin put man within the bounds of science: Buffon placed him too far beyond them. That seems to be the alternative: either we recognize our animal roots, or we claim a divine heritage for ourselves. The choice, in any case, was already made.

What we *can* still do is to ask what Buffon's reasons were for insisting on positing a gulf between mankind and animals that forced him to betray his own materialism. It can be argued, in this regard, that Buffon deliberately engineered that betrayal; and that the man-animal distinction was the pretext he found for bridging the gap between his ideas and religion. But I think there is another conceivable answer: that the human soul cannot be integrated into nature because it is the theater, or the mirror, in which nature is represented (Rorty, 1983, p.13-14). We already saw that, in *De la manière d'étudier et de traiter l'historie naturelle*, Buffon (2007a, p.35) admitted that due to his corporeal nature, man must include himself in nature; but the possible humiliation implied by that was mitigated because the true subject of that representation was excluded from nature: the representing subject did not form part of what was represented.

In "Magias parciales del Quijote" (Partial magic in the Quixote), Borges (1980a, p.175) refers to the unsettling nature of the fact that a map is included in itself, or that the *Quixote* talks about the book on the Quixote, and *The thousand and one nights* talks about the book *The thousand and one nights*. It is unsettling when the representation becomes part of what it represents; and that is what can happen if man as described in natural history turns out to be the same man who is writing it. But if we conclude that the subject who enunciates natural history is a soul outside of nature, even when it is incarnate in a body that is indeed

natural; then the distinction between the representative and the represented is re-established, and the unease is dissipated.

In Buffon's system, therefore, we can say that the distinction between mankind and animals plays an analogous role to the distinction between the *res cogitans* and the *res extensa* in Cartesianism. In the same way that, for Descartes (1927, p.35), man's corporeal nature forms part of that *res extensa* that the *res cogitans* is called to represent, without ever being confused with it; likewise in Buffon, mankind's corporeal dimension can be the subject of natural history, but it does not account for the soul in which that representation of nature has to be embedded. In this sense, Buffon's thought pays tribute to a way of understanding consciousness that is typical of modern philosophy and that was established, as Richard Rorty has shown (1983, p.128), by the work of Kant.

NOTES

[1] Four years later, in fact the year after Buffon's death, Hérault de Séchelles got swept up in the revolution; he ended up playing an important role in the so-called Public Health Committee: the agency that carried out Robespierre's terror policy. While in that post, Hérault helped draft the 1793 Constitution and sent large numbers of people to the guillotine, although perhaps without sufficient enthusaism: by order of Robespierre himself, he was accused of indifference and moderation and taken to the executioner's block with Danton, where they were both beheaded (Dupiney de Vorepierre, 1876, p.266; Varloot, 1984, p.287). Posthumously, in 1802, his *Visite à Buffon* was reprinted under the title *Voyage à Montbard* (Dupiney de Vorepierre, 1876, p.266; Varloot, 1984, p.287).

[2] In this and other literal citations of texts from non-English languages, a free translation has been provided, but quotes from Buffon are taken from the 1781 English translation by William Smellie.

[3] A partial edition of the document condemning Buffon's theses, issued by the Theology Faculty in Paris in January 1751, can be found in Buffon's selected works, edited by Stéphane Schmitt (2007, p.413-414). This also contains the text of Buffon's retraction (2007f). On this episode, see Roger (1989, p.252).

[4] Samuel Butler (1882, p.91), Emile Guyenot (1941, p.394), and Patrick Tort (1983, p.118) cannot have been the only ones to think that Buffon's concession to creationism was simply a rhetorical trick: proposing a daring conjecture and then condemning it in the name of revealed truth, but leaving the suggestion in print. The timid seducer who claims his innuendo was just "a joke" uses a similar stratagem that is no less *démodé* than Buffon's.

[5] On this issue, see Roger (1988, p.LXVIII), Beltrán (1997, p.105), and Alsina (2007, p.227).

[6] On this issue, see Bowler (1973, p.270), Roger (1989, p.435), and Caponi (2010, p.87).

[7] Besides man, Buffon identifies 13 other noble species (Roger, 1989, p.435): seven from the Old World, namely the elephant, the rhinoceros, the hippopotamus, the giraffe, the camel, the lion and the tiger (Buffon, 1766, p.362). Two species common to both continents, namely the bear and the mole (p.362); and four from the New World, namely the tapir, the llama, the peccary and the capybara (p.363). But apart from what is said about man, nothing in Buffon's reasoning suggests that the list is not revisable, including other species and/or excluding some of the ones named.

[8] On this issue, see Roger (1989, p.434), Blanckaert (1994, p.62), and Caponi (2010, p.90).

[9] On Buffon's concept of the "noble species," see Caponi (2010, p.91-93).

[10] On Buffon's understanding of the divine, see Martínez (2002, p.31), Hoquet (2007, p.140), Alsina (2009, p.249), and Caponi (2010, p.140).

[11] See Peisse (1844, p.483), and Caponi (2014, p.28).

[12] See Rupke (2010, p.148), and Caponi (2014, p.22).

[13] See Salgado and Navarro Floria (2004, p.58), and Podgorny (2004, p.21).

[14] See Caponi (2010, p.69-70).

[15] See Roger (1989, p.546), Bowler (1998, p.135), and Caponi (2010, p.137).

[16] See Roger (1989, p.549), and Alsina (2009, p.234).

[17] See also Jacques Roger (1983, p.167; 1988, p.LXX; 1989, p.546; 1993, p.580).

[18] Translator's note: This citation in English was sourced from Jorge Luis Borges, *Collected fictions*, Penguin, 1998, p.474, translation by Andrew Hurley.

[19] This is not the case for bats. But neither Buffon (2007d), Locke nor any of the modern philosophers knew about their system of echolocation. Buffon died in 1788; and Spallanzini's experiments on orientation in bats, which were not well known at the time, were only carried out in 1793 (Dijkgraaf, 1960, p.9).

[20] On the inmaterial nature that Buffon attributes to the human soul, see Flourens (1850, p.269), Roger (1989, p.336), Burkhardt (1992, p.571), and Mengal (1992, p.607).

[21] See Flourens (1850, p.268), Roger (1989, p.340), and Tinland (1992, p.547).

[22] See Tinland (1992, p.552), Martínez (1992, p.567), and Roger (1993, p.538).

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