Chapter 7
Contributions of Ethology to the Birth of a Post-Anthropocentric Ethics

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Abstract From the time of Aristotle until the first half of the twentieth century, with rare exceptions, the Western tradition has excluded non-human animals from the community of beings worthy of an ethical consideration, assigning them the role of "animated tools" of the human will (Aristotle, *Politics*: 1254 b 10). Only from the 1960s did an anti-speciesist, post-anthropocentric, bio-centric ethics begin to spread. This chapter documents the role played in promoting this ethical revolution by ethological research, the important discoveries it has led to and the changes in perspective they generated. What these pages are trying to focus on is, therefore, the link between the scientific revolutions introduced by ethology (daughters of the Darwinian revolutions), with its various stages and articulations, and an ethical revolution: that of contemporary anti-speciesism.

7.1 Introduction

The first section frames the singular relationship that the dominant currents of modern Western thought established with "the animal", declined in the singular and intended as any non-human animal, starting with the century of scientific revolution. Since the Cartesian turning point, animals began to be considered a non-sentient, and even unthinking natural "machines", breaking with the Aristotelian tradition which, while reducing them to the role of human instruments, at least recognized in them a "sensitive life".

Despite the transformism that began to spread in the eighteenth century, the Darwinian revolution that marked the nineteenth century, and the birth of ethology in the early twentieth century, this reductionist approach characterized the prevailing orientations, both in the philosophical and the scientific sphere from the early mid-seventeenth to the first half of the twentieth century. The section concludes by showing how, in the 1960s, new teaching techniques experimented on apes, while remaining theoretically, methodologically and ethically in the wake of Cartesianism, led to an anthropocentric self-refutation, thanks to their surprising results.

The second section focuses on an epochal turning point, even more radical and significant from an ethical and theoretical point of view: the one also introduced in

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the '60s by field studies of apes and the beginning of a hard fight for their protection and the defence of their natural environment. A turning point and a struggle that found their emblems in the faces of the "three angels of Leakey", the three young primatologists sent by the anthropologist Louis Leakey to carry out the first field research on the life of the three great apes, our "sister" species (chimpanzees, gorillas, and orangutans): Jane Goodall, Dian Fossey and Birutè Galdikas.

The third section focuses on the rediscovery of the pathic, affective and cognitive dimension of animal existence, that is, of its rejoicing and suffering, of the affections and forms of thoughts, introduced by the pioneers of cognitive ethology, and on the important impulse it gave to the birth of anti-speciesist ethics. Particular attention is paid to the essay *Have Animals an experience?*, published by Konrad Lorenz in 1963 (Lorenz 1963), which, by discussing the question of "pleasure" and "pain" in non-human animals, anticipated issues that would come to the fore in the scientific and ethical debate only in the following decade, with the birth of cognitive ethology, as promoted by Donald Griffin (1976), and the publication of the first contemporary anti-speciesist manifesto, namely, the book *Animal Liberation* (Singer 1975) by Peter Singer.

7.2 Modernity and "The Animal"

The teaching of Aristotle, according to which the "sensitive life is common to the horse and the ox and to every animal" (Aristotle, *Nicomachean Ethics*, I, 6, 1098a), reaches modernity modified and expanded by important thinkers, such as Bernardino Telesio, Giordano Bruno and Tommaso Campanella, for whom the ability to feel sensations is, indeed, widespread in every kind of material entity.

The century of the scientific revolution marks, however, with respect to this tradition, a drastic caesura. The paragraphs IV and V of the fifth part of the *Discours de la method* by René Descartes served as a symbolic watershed introducing the idea that non-human animals are a sort of natural "automatons" (Descartes 1637, V, 4) and do not actually experience real "feeling", "passion" or "thought" (Descartes 1637, V, 5). Then, 41 years later, the scientist, philosopher and theologian Nicolas Malebranche, heir to the Cartesian tradition, will formalize this approach by stating that "animals do not feel" because they are machines "devoid of soul and completely incapable of perception" (Malebranche 1678). This theoretical obliteration of the sensorial, emotional and volitional dimension of animal life, and in particular of animal suffering, was to be met, in the following centuries, with a great success in the philosophical and scientific field, also for its ethical and practical implications. In fact, it favoured a removal of the spontaneous empathy that the suffering, and more generally the expressiveness, of other animals can raise in human beings (it is known the anecdote according to which Malebranche, while conversing with a friend, kicked a pregnant whining dog justifying his act by such a conviction). Precisely for this reason, it offered legitimacy both to the traditional forms of exploitation and to the use of non-human animals and to a research method that, starting from that time and

for more than three centuries to come, would not have stopped marking a dizzying increase: experimentation on living animals. Nicolas Fontaine, after observing some experiments carried out at the Jansenist seminary in Port-Royal, wrote in his memorial, published posthumously 99 years after the Cartesian *Discours*: "They dealt blows to the dogs with perfect indifference, and they made fun of those who pitied the creatures believing that they felt pain. They said that animals were like watches [...] but that the body could not feel anything. They nailed the four legs of the poor animals to boards, in order to vivisect them and see the blood circulation, which was an important topic of conversation" (Fontaine 1736, II: 52–53).[1]

Regarding the specific problem of animal sensitivity and intelligence, the era of the scientific revolution inaugurated a kind of approach that, in the philosophical, anthropological and psychological fields, would have survived, despite Darwin and the birth of ethology, at least until the first half of the twentieth century. It consists in measuring the cognitive and communicative abilities of non-human animals on the basis of a single parameter, explicitly anthropocentric and logocentric: their ability or inability to articulate discourses, their aptitude or ineptitude to understand and reproduce the sounds and rules of human languages. For Descartes, the hypothesis that even the most "idiotic and stupid" men surpass in intellect the most intelligent animals appears confirmed, a priori, by the fact that the first ones "know how to combine together different words and compose a speech to be understood" (Descartes 1637, V, 5), while, in his opinion, magpies and parrots would speak but not "think what they say" (ibid.). This conviction leads the father of rationalism to reject the ancient idea, again defended by Michel de Montaigne, "that the beasts speak to each other, but we do not understand their language: since, if this were true, they,„having several organs which correspond to ours, could be understood equally well by us as by their fellows" (ibid.). It may be surprising that, at the time, not even the philosopher of "methodical doubt" was touched by the doubt that, in a scientific investigation into animal communication skills, the burden of deciphering and learning the language of the other should fall on the scientists and not on the animals. But it is even more surprising to notice that, for about three centuries, the hypothesis that the anthropomorphic apes, and other non-human animals, are capable of thinking and using symbolic languages were to be discarded starting from approaches, methods and arguments similar to the Cartesian ones.

In the first half of the twentieth century, several failed attempts to teach some chimpanzees to reproduce human language through the phonic medium followed one another. American psychologist Robert Mearns Yerkes was to be, in the first decades of the century, one of the pioneers in this field (Yerkes 1916, 1943). In the following years the studies of Kellog and Kellog (1933), Hayes (1951), Hayes and Hayes (1952) were to confirm the failure of this kind of attempt.

A different kind of experiment was instead to begin, in 1967. While remaining in the Cartesian perspective of measuring the intelligence of non-human animals assuming by as its parameter their ability to learn human languages, it was to lead, thanks to the new techniques adopted, to surprising discoveries and to a progressive

[1]The volume was published posthumously, Fontaine died in 1709.

dismantling of the Cartesian assumptions. To obtain this result, it was enough to stop asking of chimpanzees a performance that is impossible for them, like the vocal articulation of words and phrases drawn from human languages, and let them learn the sign language commonly used by deaf-mute people in the USA: the American Sign Language (ASL).[2]

Allen and Beatrice Gardner, two psychologists of the University of Nevada, launched these experiments by starting to teach Washoe, a young female chimpanzee, to learn this language. Washoe, thanks to the extraordinary efforts of Roger Fouts, to whom she was later entrusted, learned to properly use about 250 different signs and to compose with them meaningful sentences, as well as teaching the same language to other chimpanzees, with no human incentives and mediation (Fouts 1997: chap. X). Many similar experiments, supported by different techniques, were successfully performed from the early 1970s onwards, with chimpanzees, bonobos, gorillas and orangutans.[3] Even the self-recognition tests in the mirror (mark test or mirror self-

[2]As it is known, already many human populations that have not used writing, and among these different tribes of North American Indians, invented and adopted manual languages that functioned as a sort of universal language through which different tribal members or linguistic groups could understand each other.

[3]I will limit myself here to mention some of the most well-known experiments in teaching human languages to apes produced since the 1970s:

- The case of the chimpanzee Nim Chimpsky, instructed, in the 1970s by Herbert S. Terrace of the Columbia University, who learned, over the course of 44 months, to communicate using the sign language and combining 125 different signs.
- The new interactive communication technique introduced in 1972 by Sue Savage-Rumbaugh and Duane Rumbaugh of the Yerkes Primate Center of Atlanta (Georgia), based on the use of lexigrams, usable through a portable keyboard with buttons marked with different geometric symbols, each of which reproduces the sound of a given word. The chimpanzees Lana, Austin and Sherman were among the first apes to be trained with this technique, then also applied by Rumbaugh to bonobos (Savage-Rumbaugh and Lewin 1994).
- The studies conducted by David Premack with the chimpanzees Sarah, Peony, Elizabeth and Nim instructed the use of plastic signs (Premack 1986) and the paper he published together with G. Woodruff in 1978 entitled *Does the chimpanzee have a theory of mind?*. In it the authors introduced, the hypothesis that very intelligent animals such as chimpanzees possess "a theory of mind", here understood as the ability to attribute, to other individuals, mental states, expectations and desires and to use these hypotheses or information to adapt their behaviour to the other, basing on their own experience. The application of this concept of the theory of mind to the study of animal behaviour has proved to be of great use when, from the 1980s onwards, ethological research began to document, in a conspicuous manner, phenomena of concealment and deception in apes and in social birds like crows.
- The work led by Gary L. Shapiro between 1973 and 1975 with the orangutan Aazk using training techniques similar to those of David Premack.
- The performances of Koko, a gorilla trained from a young age to use the American Sign Language (ASL) by Francine Patterson, current director of the Gorilla Foundation, located in California: after a few months, Koko began to invent, for the objects that were unknown to her, new names composed of two words, such as "match bottle" to name a lighter, "baby elephant" to indicate a wooden Pinocchio, "hat eyes" to characterize a mask. The young ape has also developed the ability to lie through this form of language. Patterson reports, among others, the case in which

recognition test: MSR),[4] introduced in the '60s by Gordon Gallup (1970), while arousing a long and heated debate concerning the interpretation of the performances observed, confirmed ability to recognize their own mirror image in chimpanzees, bonobos, orangutans and gorillas.[5] The logocentric, anthropocentric and at the same time mechanistic and reductionist approach introduced back-then by Cartesianism will finally reach its auto-confutation after over three centuries. In the new millennium, the ability to recognize one's own image reflected in a mirror has been attested, through the Mark test, also in Asian elephants (Plotnik et al. 2006), rhesus macaques (Rajala et al. 2010), horses (Baragli et al. 2017), bottle-nosed dolphins (Reiss and Marino 2001), orcas (Delfour and Marten 2001), in birds such as magpies (Prior et al. 2008) and in cartilaginous fish like the mantas (Ari and D'Agostino 2016), in a tropical cleaner fish like the *Labroides dimidiatus* (Masanori et al. 2019) and even in social insects such as ants (Cammaerts and Cammaerts 2015).

7.3 The Discovery of "Anthropoid" and "Anthropomorphous" Cultures and the Fight for Their Survival

The studies based on the teaching of human made languages to non-human animals and on the mirror test, although leading to innovative and surprising results, still remained linked in various aspects to the Cartesian tradition; in fact, they appeared:

- marked by the anthropocentric criterion of considering our ways of expressing intelligence as the only possible ones, or at least superior to all others;
- oriented to a priori assume the hypothesis that the average linguistic skills of an adult man, belonging to a civilization that has codified his own communication system in written rules, constitute the only channel, or the only form, through which thinking and reasoning beings can manifest and articulate themselves;
- set up, theoretically and methodologically, starting from the conviction that removing an animal from its environment and imprisoning it in a laboratory, to

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Koko, caught gnawing a pencil by an instructor, responded to his reproach by making the sign corresponding to the word "lips" and simulating putting on lipstick (Patterson 1978, 1987).

- The results obtained by the orangutan Chantek who, trained by the American anthropologist and primatologist Lynn Miles (Miles 1994), assimilated the understanding of spoken English and the active and passive use of ASL, coming to understand and use about 150 signs to communicate desires, coin new terms, ask questions and lie.

[4] In its typical form, the mark test consists in marking the face or another part of the body of an animal with a spot of colour which it can see and touch while it is sedated and, when it wakes up, verifying if the animal locates, examines and tries to remove the spot by looking in the mirror.

[5] Unlike other apes, gorillas, in which individual recognition is based more on olfactory factors than on visual factors, show greater difficulties and often fail in the mark test. However, there are studies that attest that some individuals belonging to this species have passed it (Posada and Colell 2007; Allen and Schwartz 2008).

> impose on it experiments conceived with parameters and motivations completely unrelated to its own nature, is a way of making science more rigorous than the observation of its behaviour in a natural environment.[6]

If today most scholars have dismissed the dogma that, from Descartes to behaviourism, forced scientist to see in animal intelligence a mere mechanicalness, and if the behavioural sciences were at least partially detached from the lazy arrogance and the reiterated violence implicit in the traditional methods of studying behaviour in the laboratory, this was due to a synergy between the type of research we have mentioned and a very different way of studying animal behaviour: field research combined with the commitment to the protection of wild animals and of the environments in which they live.

A first important step in this direction had already derived from the birth of classical ethology, whose method was based on the idea that to understand the valences and functions of animal activities, it is necessary to observe them in their natural environment. Finally, animals were no longer uprooted from their environment and forced to live in laboratory enclosures. Instead, it was the scientist who went to the places where his study "objects" lived, to dive or climb with them, to spend days, months and years observing them, learning their languages and discovering their meanings and functions in the species-specific ecological and social context. The achieved results opened up an entire world to scientific understanding, that of animal intelligence, emotionality, sociality and communication, for centuries invisible to most Western scientists and writers, too concentrated on the effort to reduce every element of nature to a human instrument. From the '50s, ethological research would have crossed the borders of Europe, beginning to spread throughout the world.

These developments also led to an increasingly interweaving of the anthropological and primatological studies and to the possibility of for the first time launching projects for a long-term observation of apes in their natural environment. The main promoter of the latter was Louis Leakey, the most authoritative paleoanthropologist of the time. The trio of young primatologists to whom the scholar entrusted the arduous task would have contributed to irreversibly modifying the perception that the human world had of apes and, more generally, of non-human animals.

In 1960, Jane Goodall began to study chimpanzees at the Gombe Stream Chimpanzee Reserve, in the western Tanzania, a place that, thanks to her efforts, would have become since 1968 a protected area and no longer a safari destination.

Having already mentioned, in the third chapter of the volume, the scientific merits of Goodall, I will here briefly dwell on the ethical commitment in the anti-speciesist, environmentalist and humanitarian field that this indomitable woman has demonstrated for over half a century now.

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[6]These critical findings do not apply to the path taken by Roger Fouts who after being compelled for a long time to study chimpanzees in unsuitable conditions for them, fought hard over fifteen years, finally succeeding in 1993 to fund the Chimpanzee and Human Communication Institutes, in whose natural reserve Washoe has been able to live happily, together with the other chimpanzees of the group that Fouts has cared for, for the last fourteen years of its existence.

Working in the field for decades, Goodall soon became aware of the problem of the gradual destruction of the natural environments and of the risk of extinction to which apes, other mammals, many other animal and plant species, and even several human cultures, were and still are exposed, in Africa as elsewhere. This awareness led her to become, from the 1970s, one of the most well-known activists for the defence of the natural environments, of the organisms that inhabit them and of the human populations in need, damaged by a development model, like the one still dominant today, which is blind to the environmental, biological and social damage which it itself produces.

In 1977, Jane founded the Jane Goodall Institute (http://www.janegoodall.org/): a structure that, through a wide range of activities and projects, aims to practice, spread and teach respect for and the protection of the environment, living organisms, human populations and cultures exposed to the "collateral damage" of the current development model. In fact, if the primary mission of the institute is the conservation and/or re-insertion of chimpanzees in their natural environment, and the improvement of their living conditions in the cases of individuals or groups that cannot be legally freed from captivity, the "holistic" approach promoted by the JGI implies that this objective is always pursued in close intertwining with projects of development of the human communities present in the places where the institute operates, of the education of young people to environmental sustainability and of sustenance and start-up education and work of the most disadvantaged. In short, the commitment to get to know and protect chimpanzees and their natural environment is understood by the founder and members of the JGI as an important segment of a broader commitment aimed at spreading the awareness of the interdependent relationships between man and the rest of nature, at introducing young people to the discovery and respect of animal minds and cultures, and at safeguarding the entire community of the living, men included, by the devastating effects of anthropic impact and capitalist development.

I will limit myself to mention five of the international projects on which the Institute, that now has offices in 26 countries, works:

- the Jane Goodall's Institute Center for Primate Studies, mission of which is the non-invasive study of the behaviour and cultural traditions of primates in their natural context of life, based in the Gombe National Park, Tanzania;
- the Tchimpounga Chimpanzee Rehabilitation Center, also known as the largest wildlife oasis founded in Africa to fight against illegal trafficking in chimpanzees, which is located in Congo and has another recovery center dislocated in South Africa;
- the ChimpanZoo International Research Project, aimed at studying chimpanzees in captivity to improve their living conditions.
- the TACARE project, funded by the European Community, which provides support to the populations of 30 African villages through reforestation programs, environmental education, water purification and health care;
- the "humanitarian and environmental" program Roots & Shoots, now active in more than 80 countries, goal of which is to educate young people about respecting

the environment, knowing and understanding other cultures, about the importance of an individual commitment to rediscover the affective and social bond between man and other animals and the fight against exploitation and social inequalities.

Today, around 290 great apes, including chimpanzees and gorillas, are housed in natural "sanctuaries" managed by the JGI and about 130 African human communities are assisted by institute volunteers with education and training programs for environmental protection activities, or start-up to the eco-compatible management of agricultural works. About 5800 school projects related to Roots & Shoots are currently underway in the most diverse areas of the world.

Jane Goodall, who was named Messenger of Peace for the United Nations and awarded the UNESCO Gold Medal, today, at the age of 85, still travels for most of the year, to promote such projects and find the funding needed to support them.

Dian Fossey, the first contemporary "martyr" in the fight against the exploitation and killing of the wild animals, was also a primatologist and ethologist. In the early 1960s, Fossey started, with the gorillas of the Rwandan forests doing work similar to that of Jane Goodall with chimpanzees in Tanzania. In 1967 she founded the Karisoke Research Center, an institute that still exists today, based in the Volcanoes National Park of Rwanda. Its mission is to protect and study mountain gorillas, an endangered species. Dian's commitment in the fight against the illegal suppression and trade of gorillas led, in 1985, to his barbaric killing by poachers, probably covered by the complicity of politicians or businessmen linked to the illegal trade in gorillas. The film *Gorillas in the Mist*, released in 1998 and based on the book by Fossey of the same title (Fossey 1983) and some other volumes (Gordon 1993; Mowat 1987; Nienaber 2006), made his story known to the world, even though his murder remains unpunished until now. The Dian Fossey Gorilla Fund International, an institute that aims at raising funds to safeguard gorillas and their natural environment, was founded after his death.

Birutè Galdikas, the third woman sent by Leakey to discover the world of our sister species, dedicated herself to the protection and study of the orangutans in nature by going, in 1971, to Borneo, to the almost uncontaminated territory of the Tanjung Puting Reserve, working in the field for more than thirty years.

Galdikas founded the Orangutan Foundation International, an institute aimed at finding funds and volunteers to support a center for the recovery and reintegration in nature of captive-living orangutans and for the protection of the orangutans of Borneo and the rainforest where they live.

Still, this ethologist-zoologist-activist, who is currently a professor at the Simon Fraser University in Burnaby, British Columbia, and a Professor Extraordinaire at the Universitas Nasional in Jakarta, Indonesia, continues his anti-speciesist and ecological efforts.

Thanks to the courage, passion and talent of these researchers, to the enormous discomforts and dangers they had to face, man began to discover and protect the cultures and the expressiveness of our sister species, today more and more exposed to the risk of a complete destruction, due to deforestation, climate change and poaching.

The commitment of these women was at the origin of all the main projects of protection, rehabilitation and re-insertion in nature of the primates born from the '60s onwards and, more generally, it contributed to promoting a new sensitivity to the environmental problems and to the protection of animal and plant species at risk, and biodiversity.

Another ethologist-primatologist who has dedicated his life to the study and protection of the great apes, and should be mentioned here, is Roger Fouts. I have already discussed in the first section of the chapter some of the results that Fouts achieved in his work with Washoe, the first ape trained in the use of the American Sign Language. I would now like to highlight some of the ethical implications of his work and the important impact it had on global public opinion. In the preface to the book in which Fouts recounts his experience (Fouts 1997), Jane Goodall focuses on the "indissoluble bond" between him and Washoe, which lasted until the latter's death in 2007, and on the fact that Fouts, in order to protect the young chimpanzee, sacrificed "his career prospects". After a battle that lasted fifteen years, Fouts finally succeeded in saving Washoe and other chimpanzees from living out their lives the experimental laboratories and transferring them to a place suitable for their natural characteristics in which they could spend the rest of their existence; it was the nature reserve annexed to the Chimpanzee and Human Communication Institute of Central Washington University, founded in 1993 by him and his wife Deborah Fouts. As Goodall writes it was one of the "most extraordinary events of our time", because Fouts was a pioneer in the fight against another crucial aspect of the human exploitation of non-human animals and animal testing and has become one of the best-known animal rights advocates in the world, focusing on the legal rights of great apes and organizing, along with Jane Goodall, a worldwide campaign for their protection which has had a wide echo.

Finally, I would like to mention Ruth Harrison, a pioneer in the fight for the rights of farm animals, who, although not an ethologist, has become a point of reference both for anti-speciesist movements and for those involved in the applied ethology (van de Weerd and Sandilands 2008). In 1964, 11 years before Peter Singer's book *Animal Liberation* (Singer 1975) that would become the first manifesto of contemporary anti-speciesistism, Harrison was among the first to denounce, in the book *Animal Machines* (Harrison 1964), the atrocious living conditions of animals locked up in intensive farms and to launch the fight, still in progress, for their disposal. Three years later, in 1967, Harrison founded the Farm Animal Care Trust (FACT) and began to work as a consultant for many committees, institutes and associations dedicated to combating the exploitation of meat animals. Her pioneering commitment helped spread the message all over the world. Her complaint shocked global public opinion by stimulating, among other things, also the drafting and approval of the *European Convention for the Protection of Animals Kept for Farming Purposes*, a document drafted in 1976 that gave basic principles for the keeping, care and housing of farm animals, especially in intensive breeding systems, and inspired the current national and international legislations on the subject.

In short, as I have tried to demonstrate in this section, all the main battles promoted the anti-speciesist movements and ethics born in the 1970s (from the protection of the

biodiversity and endangered species to the fight against animal experimentation and the daily harassment of billions of farm animals) have taken a fundamental impulse from that journey to the discovery of animal minds, societies and languages which began with the birth of ethology. In particular, most ethologists, from the 1960s onwards, have conceived the study of animal ethology and the commitment for the protection of animal life and well-being as an inseparable unicum. More generally ethologists have had, and still have today, the merit of collecting, sometimes in extremely difficult conditions, an enormous amount of empirical knowledge related to the behaviour and psyche of animals, which new technologies such as sound and film recordings have made possible starting from the twentieth century onwards. This way, they made accessible to the scientific community and to the general public the data that show, with immediate evidence, the cognitive resources, the social complexity, the individual and cultural differences, the ability to suffer and rejoice for causes not only physical but also social and emotional, that are widespread in the world of non-human animals.

Anyone who observed, albeit only in a documentary, a couple of grebes performing their wedding dance, or a chimpanzee mother help her cub learn to open coconuts, will have no doubts about the priceless value of these contributions. Anyone who watched the movie of the liberation of the chimpanzee Wounda which, removed from human exploitation, rehabilitated by the volunteers of the Jane Goodall Institute, and finally brought back to its natural environment and liberated, first makes a small run, then stops, turns back, hugs Jane Goodall closely for several seconds and then finally goes away, will have an immediate confirmation of the ethical and theoretical importance of this kind of documentation.

Anyone who watched the shots of the female gorilla Koko expressing the pain for the death of her kitten friend first through the American Sign Language, and later, alone in her shelter, with a heartbreaking crying, immediately understands that between this kind of animals and human beings there are profound similarities that also invest the plane of social and emotional ties.

7.4 From the Evidence of Animal Pain to the Discovery of the Animal "You": A Journey That Has Just Begun

As it is well known, promoters of the anti-speciesist movement, which began to spread in the 1970s, first and foremost focused their attention on the matter of animal pain, insisting that contemporary society could no longer go on denying its existence. That is, to behave as if the suffering systematically inflicted by men on the animals kept in intensive farms, in the many places used for their commercial use and in the scientific laboratories, did not exist. It was no coincidence that these developments towards meta-specific and anti-speciesist ethics were emerging precisely in the years in which a new area of ethological research such as cognitive ethology placed at the center of its research programs the question of animal "sentience",

"consciousness" and thinking. Rather, it was a historical conjuncture, a synergy between a scientific orientation that affirmed the need to recognize to at least the so-called "higher animals" a volitional capacity and a cognitive life and an ethical movement that demanded respect for their ability to suffer or rejoice. Even in this case, ethological research offered ethical reflection with the materials on which to reason in the first place, as well as the empirical evidence of what it was postulating. Ethical and scientific reasons were undoubtedly intertwined in the reflection of the scholar who was the main promoter of cognitive ethology: Donald Griffin (1976). His radical critique of the model of Cartesian ancestry which equated "the animal" in general to a natural automaton, offered those who rebelled against the exploitation of animals, their killing for commercial purposes and the destruction of their natural environments, the first scientific support on which to base their claims.

However, one of the pioneers of this turning towards a post-mechanistic ethology, willing to attribute to non-human animals an "experience", a qualitative reception of their physical states and an ability for thought, had been, even before Griffin, Konrad Lorenz, founding father of comparative ethology together with Nikolaas Tinbergen. Lorenz came only at a late age to the environmental commitment of which his "spiritual testament in defense of man and nature", collected in the volume of talks with Kurt Mündl *Rettet die Hoffnung (Save hope)*, bears witness (Mündl 1988). Furthermore, the father of classical ethology was not a vegetarian and his contribution to the birth and development of anti-speciesist ethics was, therefore, only indirect. It derived primarily from its activity as a popularizer and from the capacity that all those who knew him, or read his books, found in him: his ability to understand and describe animals "from within", as Frans de Waal observed (de Waal 2001). That is: grasping and explaining their internal "motivations" (a term that in ethology has both physiological and psychic values) that lead them to behave in one way or another. Secondly, Lorenz contributed to the diffusion of a new sensibility and a greater attention towards non-human animals, as early as a dozen years before the official birth of cognitive ethology, he introduced and anticipated many of the themes that would have been at the centre of research programs in this area of study. His essay *Haben Tiere ein subjektives Erleben? (Do animals have a subjective experience?)*, initially written for a radio conference (Lorenz 1963), inaugurated the reflection on a subject that was at the time considered taboo in the field of behavioural sciences: animals' experience, "subjectivity" and thought.

After illustrating the limits of both the separatist and anthropocentric approaches and of each model that limits itself to anthropomorphically homologating the feeling and thinking of other animals to those of the humans, Lorenz affirmed that the anatomical and neurophysiological comparison represented, in his opinion, the most promising way to obtain, at least indirectly, clues to the existence, or non-existence, in non-human animals of the capacity to have "qualitative" experiences and on the possible degrees of similarity between their feelings and ours. At the same time, the ethologist surprised his listeners and readers by confessing that *for him*, the decisive proof of the existence of an internal experience in the higher animals did not come from anatomical, physiological, or morphological findings, but from an intuitive experience. He had noticed "evidence" for an animal "you" the first few

times he had found himself playing or interacting in non-constrictive conditions with intelligent creatures like mammals and birds, spontaneously and incontestably. As the scholar said: "The knowledge of the subjective experience of my fellows and the belief that even a superior animal, like a dog, has its own experience have grown in me at the same time" (Lorenz 1963. It. transl.: 63).

But, ultimately, what response did Lorenz offer to the question posed in the title of the essay? According to his approach, do all non-human animals have an experience? Do they experience forms of pleasure and pain, pleasant and unpleasant sensations, motions of attraction or repulsion? Do they have emotions like fear and curiosity, mental states such as expectations or desires, feelings of disappointment, frustration, discomfort or well-being, bonds of affection like family ties or friendship? Do animals remember, imagine, dream, think?

The ethologist's answer, despite the title of his essay seemsg to rule out a positive or negative response concerning the entire animal kingdom, was not generic. It sounded indeed like: not all!

Lorenz specified that we will never be able to say anything certain about the experience of another living being, because even the sensations of another *human* being remain, for each of us, strictly speaking, unattainable. But, in his opinion, comparative anatomy and physiology enable us to identify at least some organs, and a level of systemic complexity, in the presence of which we can consider extremely probable this type of experience. A condition of the possibility of having feelings and perceptions, and experiencing emotional and mental states, is, in fact, according to the hypothesis that the ethologist had already proposed in his Russian Manuscript in the '40s, "a relatively very high organization of the central nervous system and sensory organs" (Lorenz 1992: 201). A level of organization that, in his opinion, we can find only in "a small part of the living beings", that is, in the so-called higher animals, endowed with a central nervous system (CNS).

We understand "at a glance that a dog is sad, even if we do not know how to explain its motivation", Lorenz wrote, we recognize as such the "crying" of a mammalian puppy, or the chirp of an abandoned chick. Regardless of their species, these animal calls, like children's voices, can empathically involve us and induce us to behaviour of parental care. In other words, towards this kind of animals, we tend to behave, spontaneously, as we do with human beings: we interpret their experiences, behaviour and languages, imagining that they are at least in part like ours; we actually establish emotional and social relationships with them through these models. However, the ethologist pointed out that this "analogical conclusion" (inferring from the similarity of the organs a similarity in the basic sensory and emotional experiences) becomes more unlikely when the differences between our sensory and cognitive apparatus and those of the organisms we observe increase: "The more the structure of their perceptive organs and nervous system are different from that of mine, the more their functions will be different. How the experience associated with these functions may present itself is basically impossible for me to know. The «evidence of the you» leads me to attribute to my dog an experience somewhat similar to mine, but the more we enter in the lower steps of the organic realm, the less it is possible to apply these analogical conclusion" (ibid.: 64).

In fact, just by comparing our perceptive and cerebral apparatuses with those of other mammals, we already discover both surprising similarities and significant differences. Realizing that a dog is feeling affections and emotions and establishing with it an empathic and affective bond are experiences that spontaneously mature in children and adult human beings, if they have not undergone the effect of intraspecific traumatizing relationships. Men and dogs can socialize and understand each other in many areas. And yet, we will never experience the olfactory world and the complex scented maps, for us ineffable, that 'our' dog discovers at every corner of the street; all the more so, the ways in which the external environment may be perceived or mentally represented by organisms phylogenetically more distant from us escape us completely or almost completely.

The problem is then made more complex by the fact that the similarities between species, as Lorenz liked to remember, can be the result of homologies, or of the derivation from common ancestors, but they can also derive from a convergent evolution, that is, from a mutually independent adaptation to similar functions. Convergent evolution can, in turn, give rise to very similar performances in organisms which are phylogenetically very distant and morphologically very different (for example the flight in insects and birds) and therefore it can produce similar results with apparatuses, organs and neurophysiological activities that are enormously different. The eye of a bee, anatomically very different from ours because, like that of any other arthropod, it is composed of many small photosensitive units, allows a tri-chromatic vision analogous to ours, but more extended because it also perceives the ultraviolet light. On the contrary the eyes of many mammals, incomparably closer from the phylogenetic point of view and more similar to ours in many aspects of anatomical organization, being adapted to other environments and functions, only allow dichromatic vision.

What does Lorenz mean when he says that the superior animals have their own *Erleben*? What meaning is attributed here to the word "experience"?

The ethologist does not avoid this question and, referring to Wilhelm Busch, suggests that "the primary form of every experience" is the "capacity to feel pleasure and pain" (Lorenz 1963. It. transl.: 88, 89). Lorenz here referred to a characteristic of the animal organisms that the later cognitive ethologists would have called "sentience" (Griffin 1976, 1984): the ability to perceive the changes in the physical-chemical states and energy gradients of one's own body and their relationship with some environmental factors and that to respond to them with behaviours of distancing or approaching, avoiding or searching for certain external stimuli. The basic form of the experience is, in short, according to Lorenz, the alternation between the "message of pain", or of the unpleasant feeling, which intimates "do not do it again", and the voice of pleasure that suggests "do it again" (Lorenz 1963. It. Transl.: 63) or, more simply: "stay in this situation". Basing on this dialectic, well before the appearance of man, animals began to build, through the different ways and degrees of individual and social learning, a baggage of acquired "knowledge" that was going to be added to their hereditary endowments, making their behaviour more flexible

and modifiable. Through this basic form of experiencing, animals capable of associative learning begin, in fact, to experiment resources and explore their environment, memorizing what is learnt not in a conceptual form, but in terms of implicit memory and behavioural attitudes. Precisely in this sense, according to Lorenz, it is correct to attribute experience "even to the higher animals": there are, without doubt, pre-human and pre-conceptual forms of experience of pleasure and pain, sensations such as nervous excitement and relaxation, emotions such as fear or attraction, emotional and social needs such as receiving parental care and being accepted by the reference group, and forms of thinking older than rationality, which are widely widespread among the "higher" animals. Therefore, according to him, both anthropomorphic homologation of perceptive and cognitive forms of other species to human ones and the anthropocentric supposition that can be no analogy between our basic sensations, perceptions and emotions and those of another mammals, or birds are completely misleading. In other words, the concept of experience must be understood, for Lorenz, in a way that is at the same time as less anthropomorphic and less separatist as possible. Thus, in a nutshell, according to the approach proposed by Lorenz in 1963, the similarities between their neurophysiological organization and ours, widely attested by comparative anatomy and neurophysiology, force us to recognize *at least* in the animals that have a Central Nervous System the ability to feel pleasure and pain, attraction and repulsion. The anatomical, physiological, and experimental evidence in favour of this hypothesis accumulated by neurophysiological research in the following years means that, today, it is widely shared in the scientific community.[7]

However, the thesis that the possession of a centralized nervous system is a *conditio sine qua non* of the possibility to experience suffering and its opposite, sketched by Lorenz in that essay, seems to reveal itself, in the light of the research carried out in the last decades, if not fully overcome, at least too restrictive and prudential. Scholars who have given important contributions to the development of cognitive ethology, such as Donald Griffin or James and Carol Gould, anti-speciesist intellectuals such as Peter Singer, Italian ethologists such as Danilo Mainardi and Giorgio Celli, have argued that this approach arbitrarily traces a border, based more on our inability to recognize experiences and thoughts in organisms that are very different from us than on the actual lack of empirical or experimental evidence of their existence. Already at the time of Lorenz, neurophysiological research had shown that animals traditionally classified as "inferior", like social insects, are in

[7]This position was re-launched just a year later in the book *Animal Machine* by Ruth Harrison (1964), which contained a passionate denunciation of the living conditions of animals kept on intensive farms and which was to give rise the current trend of contemporary animalist ethics. The attribution of the experience of pain to mammals, birds, reptiles, amphibians and fish, animals endowed with a real Central Nervous System, is today almost unanimous among scholars of biological formation and new studies continue to accumulate evidence in this sense. For example, confirming and completing research produced in the previous decade by other researchers, biologist Victoria Braithwaite of the University of Pennsylvania has collected a neurophysiological, ethological, experimental and comparative documentation, which can be considered exhaustive in showing that fish experience pain (Braithwaite 2010).

fact capable of creating cognitive maps and, therefore, forms of representation of their environments that are not only perceptive, but also mental and mnemonic, used to communicate information to other con-specifics and to locate nutritional sources. Over the past thirty years, based on a growing corpus of studies, the belief that "even mollusks like octopus and cuttlefish, or insects like bees and ants, possess a mind [...] and have developed sophisticated communication systems and thinking skills" (Mainardi 2010) has been spreading among cognitive ethologists. This conviction first of all concerns the very large group of animals like arthropods (insects, arachnids, crustaceans), annelids and molluscs which, even if they do not possess a Centralized Nervous System, are equipped with a metameric system, formed by chains of ganglia that allow highly complex performance. Less investigated, with respect to the topic of cognitive maps, is the more subtle question posed by Lorenz, concerning the possible existence, in these organisms, of forms of experience of pleasure and pain. But new elements have also emerged in this field in recent years. For example, it had already been pointed out, years ago, that the nervous systems of some insects produce analgesic opioids when tissue damage is taking place, similarly to higher animals. More recently, in the drosophila fruit fly that was the protagonist of the major biological discoveries of the twentieth century a receptor, known as TRPA1, has been identified that plays an important role in decoding painful stimuli. It seems to be present also in all other animals and to originate, almost identical to its current form in an organism that lived about half a billion years ago and from which all existing invertebrates and vertebrates derive (Kang et al. 2010).

In short, with our current knowledge, we can with Cartesian certainty no longer exclude that our neurophysiological and cultural limitations prevent us from seeing in creatures so different from us as wasps or octopus traces of experience, sensation, emotion or thought, which instead exist. This could depend on the fact that their expressiveness is too different from ours, that they lack, for example, bodily warmth, voices, mobility of the gaze, facial mimicry and expressiveness, having in their place hormonal, chemical, electrical messages and other forms of communication that we do not grasp. The cognitive barrier could also depend on emotional barriers. Not only with insects, arachnids, crustaceans, worms and mollusks, but also with animals that are more complex and closer to us in the basic neurophysiological organization, such as fish, amphibians and reptiles, it may seem impossible for us to develop anything more than a simple habit of mutual presence, or a mere ability to interact. It seems, in other words, to be missing the possibility of establishing a bond of affection that in mutually non-stressful conditions, we can instead easily establish with animals belonging such as birds and mammals.

It is, in short, really difficult to understand in which cases, in spite of what Descartes thought, it is the limits of our cognitive and communicative channels and our prejudices and presumptions preventing us from recognizing that in animal life other forms of experience and representation of reality may occur, and conversely, in which cases, as seems to happen for in the vegetable realm, life takes place without mediation of sensations and experiences, as pleasant or unpleasant as they may be. As we can see, these are questions in which philosophy has always been committed, in which the effort to understand the resources and limits of our mind is intertwined,

for its own internal need, with questions aimed at investigating the characteristics of "other minds" that differ from ours without having to be considered "inferior" to it.

Developments in neurophysiological, ethological and psychological studies seem today to substantially confirm the critical value of the approach that Lorenz took in 1963, recognizing in many non-human animals a sensitive and affective life and an ability to think (Allen and Bekoff 1997), but at the same time they suggest that it would be a mistake to suppose that animal thought can manifest itself only in the anthropomorphic (and culturally Eurocentric) form of the conscious elaboration of projects and their subsequent execution. One of the hypotheses that Lorenz, following a tradition which went from Helmholtz to his friend von Holst, proposed in this essay has been in the meantime widely corroborated: the animal and human brain continually perform a series of extremely complex calculations, on which all phenomena of perceptual constancy are based without these entering the threshold of awareness. In addition to the phenomenon of "unconscious deductions" (as Helmholtz called them) or "ratiomorphic" processes (as Lorenz, following Egon Brunswick, preferred to say) more recent research has also confirmed the hypothesis launched by von Holst and Mittelstaedt and resumed from the ethologist in *Haben Tiere ein subjectives Erleben*?, that our brain elaborates, from time to time, a sort of planning of the motor activities that the body is about to accomplish, building an anticipatory scheme of action, without us being aware of it. Accurate studies like those presented by Christopher Frith in the book *The Cognitive Neuropsychology of Schizophrenia* (Frith 1992) confirm, in keeping with what von Holst, Mittelstaedt and Lorenz maintained, that the production of this "efferent copy" of an incipient action "does not happen on a conscious level" (ibid.). And yet, according to Frith, this unconscious process is indispensable for a thinking subject to recognize themselves as an executing agent of their own behaviour and precisely the jamming of this process would be one of the causes of the inability to think of themselves as subjects responsible for their own actions, often manifested by schizophrenic patients.

As we have seen, even today, the ideas that then Lorenz put into play, and the knowledge he was spreading are intertwined with the questions that empirical and experimental research raises for a theoretical reflection and conceptual elaboration that identifies the points where the intersection and critical exchange between scholars of different backgrounds and the removal of disciplinary boundaries are required by the characteristics of their own objects of study. That is, from the internal complexity and the unexpected reciprocal relations that these "objects" reveal. To conclude, the possibility of a further deepening of our knowledge of animal minds, cultures and societies today more than ever depends on two aspects:

- a concrete commitment aimed at safeguarding their survival and independence and, therefore, the natural environments that host them;
- the development of a philosophical and ethical reflection oriented towards an eco-centric vision, which considers the community of the living as a whole and which does not separate itself with a disdainful gesture from the empirical and natural sciences, nor does it submit to them, but challenges them and allows itself to be challenged by them in a practice of knowing capable of adapting itself to its

object, to the places where it exists, lives or manifests itself and does not pretend that the object came to our laboratory or computer, to our desk or just in front of our chair by itself. All the more if the "object" in question is another perhaps sentient living being, perhaps like us, moved by attractions and fears; perhaps thinking, certainly less harmful and dangerous for all the living species, than Man and his contemporary society.

7.5 Cognitive Ethology and Anti-Speciesist Ethics: Two Revolutions in One

As its title makes clear, this chapter is aims at documenting the role ethological research has played in promoting *the birth* of contemporary post-anthropocentric and anti-speciesist ethics. Its purpose is to show the links between the *scientific revolution* introduced by ethology and the *ethical revolution* which began with current anti-speciesist movements. On the contrary, an illustration of the enormous and multiform developments of the latter that have taken place in the last decades, precisely because of their vastness and internal complexity, remains outside the intent of the chapter.

Although, the brief notes that follow cannot of course overcome this structural limitation, they should offer a small glimpse on the intertwining of cognitive ethology, ethological philosophy and anti-speciesit ethics since the 1970s, which results obviously incomplete and oriented to report only some exemplary cases.

But, above all, I would like to attract the reader's attention on an aspect that has perhaps not been emphasized enough in the previous pages: if ethology has offered the nascent anti-anthropocentric ethics a good part of the empirical and scientific documentation on which they base their claims, pioneers of anti-speciesism like William Russel and Rex Burch (the first to introduce the well-known criterion of the three Rs),[8] Ruth Harrison, Jane Goodall, and later Peter Singer in turn played a very important role in promoting *an emancipation of the ethological thought*. They in fact promoted, its connection to the great *emancipationist* tradition that historically emerged from the long wave of Enlightenment, and becoming at the same time an extension, and a problematization, of this tradition. In this respect, the philosophical and ethical revolution introduced by contemporary anti-speciesism and the scientific revolution introduced by cognitive ethology, *both still in progress*, embody two faces

[8]The Three Rs principle, formulated for the first time in the volume *The Principles of Humane Experimental Technique* (Russel and Burch 1959), aims at providing guidelines for the least invasive and least extensive use of animals in scientific research that technologies make possible. The Three Rs indicate, respectively, the concepts of:

Replacement: methods that avoid or replace the use of animals in research.
Reduction: use of methods that enable researchers to obtain comparable levels of information from fewer animals, or more information from the same number of animals.
Refinement: use of methods that alleviate or minimize pain, suffering and distress in the animals and improve their living conditions.

of the same epochal revolution that has profoundly, and positively, changed the way in which human beings relate to other animal species.

From the second half of the seventies, the anti-speciesist-environmentalist-humanitarian commitment of Jane Goodall, the spread of Singer's libertarian ethics and the descent into the field of numerous other scientists and activists gave a more general contribution to the inclusion of ethological knowledge in the field of ethical and philosophical reflection. They brought out, in fact, in both its problematic nature and indisputable significance, the connection between *speciesism* and phenomena such *as racism, sexism, homophobia and discrimination against the "disinherited" of the earth.* This in turn linked the question of human oppression against the animals, and the need of its overcoming, to *all the great ethical and social struggles for emancipation that have crossed modern and contemporary history.*

In other words, the scientific revolution launched by cognitive ethology and the ethical revolution triggered by anti-speciesism have been intertwined since the beginning. Peter Singer, the philosopher who perhaps more contributed to spreading the anti-speciesist issues internationally, used in his first book, *Animal Liberation* (1975), much data and several references taken by some of the major ethologists of the time: Konrad Lorenz, Niko Tinbergen, Irenäus Eibl Eibesfeldt, Jane Goodall and George Schaller. The following year, he published the volume *Animal Rights and Human Obligations* (Regan and Singer 1976) with his colleague Tom Regan. In that same year, Donald Griffin, with the book *The Question of Animal Awareness* (Griffin 1976), began to revolutionize the science of animal behaviour by proposing a new research program focused on the study of different forms of "sentience" (the ability to feel and memorize sensations) and intelligence, widespread in the animal world.

As Colin Allen and Marc Bekoff observe, these two events were meant to interact with one another since the beginning: "In *Animal Liberation*, Peter Singer sought to revolutionize societal treatment of nonhuman animals by arguing that animal agriculture and animal experimentation cause conscious pain and suffering that is real and morally significant. With *The Question of Animal Awareness*, Donald Griffin sought to revolutionize the science of animal behaviour by insisting that questions about animal consciousness should be placed firmly in the foreground of a new program of research he labelled «cognitive ethology» . Both proposals immediately evoked a range of reactions, from enthusiasm to virulent attacks. In the ensuing three decades, little consensus has been reached about either. Although Singer's arguments about ethical treatment of animals preceded Griffin's arguments about scientific understanding of animals, it is obvious why ethicists concerned with the former should be interested in the latter. Singer himself based the case for animal liberation on scientific evidence of behavioural and neurological homologies between humans and other animals. Cognitive ethology, by rejecting behaviourist strictures against attributing subjective states of awareness to nonhuman animals, offered the prospect of increased scientific support for the claim that animals are conscious in the ways that matter ethically" (Allen and Bekoff 2007: 2).

Soon after, these developments would, in turn affect the birth of new sectors of the ethological research. In Chapter 2 of the collective book *Animals and us. 50 years and more of applied ethology* (Newberry and Sandilands 2016), Ruth Newberry and

Victoria Sandilands observe that Harrison, Russell and Burch and Singer's works contributed to create the scientific and cultural milieu in which the first pioneeristic forms of applied ethology oriented to increase an "animal welfare" developed.[9]

In 1993, Singer himself, together with the philosopher Paola Cavalieri launched the *Great Ape Project* (GAP): an international organization of primatologists, anthropologists and ethicists who elaborated a *United Nations Declaration of the Rights of Great Apes* (chimpanzees, bonobos, gorillas and orangutans) aimed at conferring them with basic legal rights.

Subsequently, the Australian philosopher continued to deal with antispecies issues but also extended his commitment to questions like environmental emergency, the growing imbalance between rich and poor, anti-Semitism, exploitation of the less industrialized countries and the damage and social imbalances caused by capitalist globalization. Books as *The Expanding Circle* (Singer 1981), *Ethics into action* (Singer 1998), *One World: The Ethics of Globalisation* (Singer 2002), *Pushing Time Away: My Grandfather and the Tragedy of Jewish Vienna* (Singer 2003), *The Life You Can Save: Acting Now to End World Poverty* (Singer 2009), *The Most Good You Can Do* (Singer 2015), *Ethics in the Real World* (Singer 2016), *Why Vegan?: Eating Ethically* (Singer 2020) attest to the continuity and breadth of this commitment.

Meantime, the utilitarian approach to anti-anthropocentric ethics that he introduced was reworked and re-proposed by various scholars and thinkers. Among these, American philosopher James Rachels (1942–2003) made important contributions to the development of an anti-speciesist ethical orientation. Discussing the issues of ethical vegetarianism and animal rights, he adopted an approach according to which human choices and actions are to be evaluated on the basis of their effects on both human and non-human beings. Furthermore, in many of his writings, from the short essay *Do Animals Have a Right to Liberty?* (1976) to the volume *Created from Animals* (1990), he fully grasped the historical and conceptual link between the Darwinian revolution, which also runs through the entire history of ethology, and the development of a new ethical sensitivity towards non-human animals.

According to Rachels, animals—like some human beings with disabilities that render them unable to understand and respect certain ethical rules—cannot be subjected to moral duties and constraints, but despite this they should be recognized as bearers of moral *rights*: "like the retarded person, they lack characteristics

[9] An accurate account of the positive but at the same time always problematizing influence exerted in the following two decades by this intertwining of animal welfare ethology and "animal rights" commitment was offered in 2009 from the issue 118 (3) of the scientific journal *Applied Animal Behaviour Science*, entirely dedicated to the topic. The issue illustrates *inter alia* the main changes in the national and international legislation that these ethical battles had inspired. In one of the papers, entitled *Ethology applied to animal ethics*, the biologist and professor of Animal Welfare Hanno Würbel emphasized what he considered the most important aspect of this turn: "According to modern animal welfare legislation, animals should be protected from suffering and lasting harm not for the benefit of us humans as in earlier anthropocentric conceptions, but in their own interest. [...] Moreover, from an ethological perspective, protecting animals in their own interest represents true altruism which places considerable ethical demand on us" (Würbel 2009: 118). In 2016 the volume *Animals and Us. 50 Years and More of Applied Ethology* offered further updates and reflections on the subject.

necessary for having obligations; but they may still be proper beneficiaries of our obligations. The fact that they cannot reciprocate, then, does not affect our basic obligations to them" (Rachels 1976: 223).

Since the 1990s and even more so in the new millennium, the intertwining between cognitive ethology, philosophy of ethology and active commitment in the fields of wildlife protection, "animal rights" and ecological commitment has become increasingly thicker.

In the first two decades of this new millennium, ethologist Jonathan Balcombe was one of the scholars who gave important contributions to the study of animal sentience offering extensive documentation on the ability to experience pleasure and pain in vertebrate and invertebrate animals. From 2015 to 2019 Director and Associate Editor of the "Interdisciplinary Journal of animal feeling" *Animal Sentience*, he dedicated to these studies books as *The Use of Animals in Higher Education: Problems, Alternatives, and Recommendations* (Balcombe 2000), *Pleasurable Kingdom: Animals and the Nature of Feeling Good* (Balcombe 2006), *Second Nature: The Inner Lives of Animals* (Balcombe 2010), *The Exultant Ark: A Pictorial Tour of Animal Pleasure* (Balcombe 2011), *What A Fish Knows: The Inner Lives of Our Underwater Cousins* (Balcombe 2016), *Super Fly: The Unexpected Lives of the World's Most Successful Insects* (Balcombe 2020).

Among the scientists who have made important contributions to the developments of both cognitive ethology and anti-speciesist ethics in the last twenty years, it is therefore impossible not to mention ethologist and activist Marc Bekoff. Since the nineties he has been offering significant empirical and theoretical contributions to both our understanding of animal experiences and minds and their protection and defense. In 1997 his collaboration with the philosopher Colin Allen led to the joint editing of the volume *Species of Mind: The Philosophy and Biology of Cognitive Ethology* (Allen and Bekoff 1997). In 1998 he was editor of *Encyclopedia of Animal Rights and Animal Welfare* (Bekoff 1998) and co-editor with John Byers of the book *Animal Play: Evolutionary, Comparative and Ecological Perspectives* (Bekoff and Byers 1998). In 2000 he co-founded the association "Ethologists for the Ethical Treatment of Animals" with Jane Goodall, the purpose of which is "to develop and maintain the highest of ethical standards in comparative ethological research that is conducted in the field and in laboratory" (Bekoff and Goodall 2000: 277). A few years later they published the book *The Ten Trusts: What We Must Do to Care for the Animals We Love* (Goodall and Bekoff 2002).[10] In 2007 his collaboration with Allen gave rise to a new fruit: the still much quoted paper *Animal minds, cognitive ethology, and ethics* (Allen and Bekoff 2007). His commitment to both the areas of scientific research and ethical reflection continued uninterruptedly in the following years. Recent testimonies of it are the volumes *The Animals' Agenda: Freedom, Compassion, and Coexistence in the Human Age* (Bekoff and Pierce 2017) and *Canine Confidential:*

[10]Even in a recent text, co-edited with Dale Peterson, *The Jane Effect: Celebrating Jane Goodall* (Peterson and Bekoff 2016), Bekoff returned to highlight the enormous ethical impact that Goodall's research and commitment have had.

Why Dogs Do What They Do (Bekoff 2018), as well as his participation to the collective paper *Recognizing animal personhood in compassionate conservation* (Wallach et al. 2020).

The meaning and the ethical relevance of the debate arisen in those decades from the intertwining of ethology, philosophy and ethics was well understood and exposed in the collective book *Animal minds and animal ethics*, edited by Klaus Petrus and Markus Wild (Petrus and Wild 2013). In the introduction, titled *Big issues in animal philosophy*, the authors wrote:

"What may, in very general terms, be called 'the animal issue' has drawn wide academic and public attention in the past thirty years. The issues at stake are our (Western) perception of animals, our interaction and involvement with animals, the differences between ourselves and other animals, our moral obligations towards animals and the practical consequences that a moral standing of animals would have. After the turn of the 21st century, animal ethics are very much on the mind of philosophers, ethicists, professionals who use animals, politicians, lawmakers, pet-owners, and the public. A related phenomenon is the explosion of research into the cognitive abilities of animals, as seen in the inspiring work being done on the science of animal cognition and behaviour. This development has not remained without a direct influence on philosophy, especially regarding not only the philosophy of mind but also the moral philosophy. Clearly, the animal issue has engaged philosophers in two related but distinct ways. On the one hand, there has been a growing interest in the question of animal minds. Can we attribute mental states to non-human animals? If so, what kinds of mental states? What does the mental life of a non-human animal look like? On the other hand, there has been a growing interest in the question of animal ethics. Do we have direct moral obligations towards animals? Do animals have rights? Should states enact strong legal policies with regards to animals? Philosophers working on questions of animal ethics usually draw on research into animal cognition and subscribe to strong positions regarding animal minds" (Petrus and Wild 2013: 7; 8).

An overall reflection on this debate, on the studies that supported it and on the great questions it has raised is finally proposed in the very recent Judith Benz-Schwarzburg volume *Cognitive Kin, Moral Strangers? Linking Animal Cognition, Animal Ethics & Animal Welfare* (Benz-Schwarzburg 2019). In the preface, Benz-Schwarzburg presents her work with these words:

"This book is an interdisciplinary study at the intersection of the humanities and natural sciences. It deals primarily with questions of animal ethics, animal welfare, and cognitive ethology, but it also includes, for example, insights from evolutionary anthropology, cognitive archaeology, comparative psychology, developmental psychology, theoretical philosophy, linguistics, and veterinary medicine. Based on the results of empirical research in the area of mental ability and performance, the book is intended to explore something that has been under investigation since the introduction of Darwin's theory of evolution: namely, the possibility that the difference between people and animals is only gradual. This entails an examination of crucial aspects of the evolutionary relationship between humans and animals and

their practical importance for human-animal relations today" (Benz-Schwarzburg 2019: IX).

7.6 Conclusion

Naturally, as clarified at the beginning of this section, in the decades that separate our time from that of the birth of cognitive ethology and anti-speciesist ethics, many ethologists, philosophers and groups of activists have contributed, together with those mentioned, to enrich these international debates and social movements. For philosophical contributions, just see the works of scholars such as Gerald J. Massey (who coined the term "philosophical ethology". See: Massey 1999), Elliot Sober, Mary Midgley, Christine Korsgaard, Luisella Battaglia, Roberto Marchesini, Massimo Filippi, Martha Nussbaum and Bernard Rollin.[11] Unfortunately, it would have been impossible to follow the threads of all these developments in this work, given their richness and complexity. Nonetheless, with this book the authors hope to have been able to give to the ongoing debate related to this contemporary ethical-scientific revolution, fuelled by a historical feedback between cognitive and cultural ethology, evolutionary and developmental studies, ethical reflection and philosophical ethology, a small contribution.

To conclude: in this era of global ecological crisis, the possibility of a further deepening of our knowledge on animal behaviour, languages, minds, cultures and societies that is the object of ethology is inextricably linked to a concrete commitment aimed at safeguarding their survival and independence and the natural environments that host them, just as it is linked to the struggle for the abolition of intensive farming—which is still one of the main causes of pollution—and of other forms of exploitation suffered by animals today.

The situation makes the development of a philosophical and ethical reflection oriented towards an eco-centric vision that considers the community of the living as a whole and does not separate human communities from the environments in which they live, necessary and urgent.

Ethology has certainly offered all disciplines that deal with living organisms, their environments and their societies, a lesson in humility that even a part of the philosophical community has begun to assimilate: when the "objects" of our research are other, definitely sentient living beings moved, like us, by attractions and fears, perhaps thinking and certainly less harmful and dangerous than man and his contemporary society, *it is necessary to develop a practice of knowing capable of adapting itself to the object* and to the places where it lives, capable of respecting its autonomy and protect its survival, and to not, on the contrary, authoritatively and lazily expect

[11] For a first approach see: Massey (1999), Sober (2000), Midgley (1978, 1983, 1984, 2010), Korsgaard (2006, 2018), Battaglia (2009, 2011, 2016), Marchesini (2008, 2011, 2018), Filippi (2011, 2016), Nussbaum and Sunstein (2004), Rollin (1981, 1995, 2006). In turn, I have dealt with these issues in some essays. See: Celentano (2000, 2011, 2013, 2017a, b, c).

the object to appear in our laboratory, on our computer, our desk, or just in front of our comfortable chair, to be examined.

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