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The Descent of Man by C.R. Darwin. A continuous debate since 1871

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On January 15, 1871, Charles Robert Darwin delivered for printing a weighty manuscript entitled *The Descent of Man, and Selection in Relation to Sex*. The manuscript was the result of an intense debate with friends and colleagues, in particular with Alfred R. Wallace and was a huge collection of evidence on human evolution and on natural and sexual selection in the animal world.

Darwin, who knew he was dealing with very thorny topics, wanted to avoid as much as possible that the prose was misleading or too difficult for the common reader, the intended main audience. The work had a clear dissemination intent and some chapters were given a special, critical reading by his daughter Henrietta and his wife Emma.

Even in its draft form the book Darwin was sure that it would be a bestseller. Furthermore, in 1871 C. Darwin, although no longer a young man, was still a provocative writer and Murray was a good and fortunate editor (Murray Press: *Original Thinking & Distinctive Writing Since 1768*).

The work saw the light one month later and by March 1871, more than 4500 copies sold and the first reprint started. Meanwhile, Darwin had already begun writing *The Expression of the Emotions in Man and Animals*, to discuss all those topics that, for reasons of space (and no longer for reasons of opportunity), he had not included in *The Descent*.

As for *The Origin of Species* we are presented with a book that is easy to read, with a fluent and captivating prose, even if considered by the Darwin's contemporary academics to be completely naive. Here, more than in any of Darwin's other works, the effort of synthesis is even greater. Darwin had been collecting articles and testimonies for years. He had extensively debated these topics in lengthy correspondence with colleagues and passionate naturalists around the world. At a minimum, we cannot help but admire how Darwin engaged and encouraged an impressive network of scientists, enthusiasts and neophytes (Sineo, 2010).

The result, contained in two volumes, even today is a continuous surprise. On each page the reader finds very fascinating naturalistic information, precise references and explanatory notes. Additionally, today's reader is struck by the argumentative effectiveness on important theoretical themes, and is actually surprised to realize that some of the «sensational discoveries» of the biology, and above all, of the ethology of the twentieth century had, in fact, already been described and debated by a plethora of forgotten and unrecognized scientists in previous centuries, and above all Darwin. From this point of view the book is also an effective history of natural science between the seventeenth and nineteenth centuries.

The Descent of Man was divided into three parts: the first part dealt with the origin of humans and the second and the third, more substantial, presented sexual selection in relation to human evolution and in the general context of animal life.

Today the most widely read and quoted edition of the *Descent* is the Third edition. In the third edition Darwin distanced himself from Wallace. We can only speculate on the exact reasons but it may have had something to do with Wallace's insistence that natural selection was not sufficient to account for the higher more «noble» aspect of human behaviour and intelligence. It is interesting to note that, even later, Darwin continued his dialog with Wallace. In any case it appears that the third version was effected by a more intense critical contribution of Thomas Huxley.

Influence apart we can return to discussing the contents of the book. As mentioned, the first part dealt explicitly with the evolution of humans, with all the themes that up to now had not been addressed for reasons of expediency: [before] «*I would have only added prejudices against my opinions*», said Darwin in the introduction. Darwin's examination was systematic and brought to the reader's attention a series of biological, behavioral and paleontological proofs, that demonstrated «*how man – like any other species – descended from some pre-existing form*»; how humanity was in fact the result of a gradual evolution from an ape-like ancestral ancestor; that the origin of humanity was monophyletic and how the different humanities were variants determined by adaptive

phenomena and actually oriented by sexual selection.

Undoubtedly the first volume, as expected, was a product of an historical moment and, as such, sometimes contained relevant errors. There are erroneous conceptions, due to a mixture of «ignorance» and prejudice. For instance Darwin's preference for *Pangenesis*, which perhaps he could have avoided, given the presence of an increasing number of evidences that both parents equally sustain the transmission of characters.

Nevertheless, Darwin was at least partly aware that his book could contain errors. In fact, Darwin wrote «*some of my assessments will be contradicted and corrected*». However, the treatise also contains a series of Lamarkian slipups, for example when he mentions the hereditary aptitude for fishing of the Fuegians, or the greater size of the limbs of the farmworkers.

If some evaluations were very significant and prophetic, such as those relating to the phylogeny, affinity and specificity of the internal and external parasites of humans and primates as well as discussions on the causes of arrested development or hereditary pathologies. However, on other subjects somewhat discouraging trivializations appear, such as those on faces of «idiots» or the phenotype of «savages», with their impressive jaws. We must remember that Darwin was incurably British, son of the colonial world, and it is not surprising this mind-set manifests itself in obvious prejudices which today seems racist, sexist and totally unacceptable.

This first volume also includes insightful evaluations on the mental faculties of man and animals, a chapter of extreme relevance in contemporary science: «*now only a few people deny that animals possess reasoning power [...] one can continually see animals - hesitate - decide - solve*»; or courageous evaluations about how anthropologically important it was to discuss the aesthetic sense («*physiological principles of why harmonies are pleasant*», quoting Helmholtz) and the rationality of non-human animals.

The first volume closes with a series of very thorny arguments, which alas, still remain today, 150 years after the Darwin initiated the debate. Slavery «*although useful for some is a great crime [...] linked to the belief that slaves belong to a different race from that of the masters*»; race, an argument not supported biologically and to debate which «*the intellectual, moral and social faculties must be left out of observation*»; morality, a sense that is phylogenetically constructed in the environment of society; extinction.

Darwin was the first effective analyst of epochal extinction, he was witness to the tangible extinction (his wonder in the presence of South American fossils), and he carefully evaluated the action of his contemporaries, who transformed the world. Today we could consider Darwin was a precocious witness of the Anthropocene. Very striking, even if the style was didactic, was Darwin's paragraph on the harassment and systematic genocide of the

Tasmanians by the British settlers. Between 1832 and 1864, the aboriginal population of the island was reduced from 20,000 to 4 individuals (one male and three females).

The second volume deals with sexual selection. These topics were not new to Darwin's readers; they already appeared in both *The Origin* and *The Variation of Animals and Plants under Domestication* (1866). Males competed for reproductive access to females, but male competition was counter balanced by the importance Darwin gave to female choice. With the «*female choice*» theory Darwin greatly expands the debate on the topic and scope of selection. Female choice provided a mechanism for females to make critical assessments of future partners' fitness and what we could define as a forecast enquiry on the quality of potential offspring. Darwin examples of female choice were supported by dozens of examples from the animal world. Darwin's narration always reminds us of the high cost to male secondary sexual characteristic, which seems to become a type of Darwinian paradox. Males for access to females often risks predation, due to their visibility and the energy expenditure of displays. It is noteworthy that, on this argument, there was an intense exchange of letters between Darwin and Paolo Mantegazza, the inspiratory and forerunner of Italian biological anthropology (see Bigoni in this volume). Mantegazza was an expert in behavioural studies related to sex and sexuality, and he was adamantly opposed to the female choice theory (it is also interesting to note that the correspondence between the two scientists instead found them in particular agreement on the subject of Pangenesis, which greatly appealed to Mantegazza).

There were fascinating anecdotes used by Darwin as a manner of supporting an argument. For example, the anecdote of the lapwings by Sir Heron: «[...] *they have a preference for a particular male – if he is removed they show anomalous behaviour, if he comes back they are happy (if the male is eliminated they turn to another male)*». The topic is fascinating and, we know, promising, even if the Darwin appears to have developed it with considerable hesitation given the limited specific knowledge.

In the second part the contents and the arguments becomes, at times, a bit pedantic. For example, there is, a large appendix on the proportional numbers of the two sexes in animals. Here Darwin provides many examples, and described cases of artificially unbalanced ratios in man, with the use of ethnographic data he provided a brief comparison with the natural world and the various behaviors of animal species.

However, today some aspects of Darwin's presentation of sexual selection, above all on the role of females seems particularly unhappy. In spite of the fact that Darwin emphasized the fundamental role of females in sexual selection through critical choice and, by extension the evolution of the aesthetic sense,

he had a low opinion on the mental abilities of women. For example, the extraordinary size of the human male brain size was accounted for by Darwin as a type of peacock-tail modulated by female choice. Darwin then goes on to conclude that female brain size was simply a collateral effect with female intelligence, clearly inferior to that of males.

The second part ends with equally fascinating topics such as the sense and perception of colour in the natural world, the paradoxes related to the chromatic vivacity, the dangerousness of appearances, the sense of music, and the concept of natural beauty, the artificial modification of the bodies and the expression of secondary sexual characteristics in humans and non-human animals. Darwin even proposed a now rejected hypothesis that human population differences were mostly due to sexual selection.

The book had a rapid and tangible effect on public opinion and Darwin very soon became the glorious flag or the damned flag of battling parties. And the debate was not only on evolution. Darwin became a social argument, the fuel for social discussions. Different and often enthusiastic was the reception of the work by the nascent European socialist workers and feminists movements, especially in the United States. In fact, it must be said that Darwin immediately had an overwhelming success in the New World: *«For much of the 1800s, everyone from California gold miners to Ivy League professors could, and often did, recite by heart the writings of William Shakespeare [...]. A similar fate befell the work of American's second-favorite Englishman. When Charles Darwin's books were first published in the US, they were read, in one form or another, by seemingly everyone. They were often popularized through new magazines such as Edward Yeoman's Popular Science Monthly, a unique periodical in which leading naturalists published alongside amateur science enthusiasts, including even women»* (Hamlin, 2021). At the same time, frightened by the consequences of the enlargement of the social debate, many academies began to distance themselves from certain statements contained in the work and from their media handling – and this happened more precisely in America.

In several parts of the work Darwin went deeply into very important ethical issues. For example, he introduced the problem of humanity that, overcoming natural selection, actually undermines his naturalness and ability to maintain adequate fitness: *«We civilized men, on the other hand, do our utmost to check the process of elimination; we build asylums for the imbecile, the maimed, and the sick; we institute poor-laws; and our medical men exert their utmost skill to save the life of every one to the last moment»*. These arguments border on eugenics and prompted a host of voracious critics and detractors of the author. Paraphrasing a recent critical pamphlet by Jerry Bergman (Bergman, 2011) we can say that starting from the end of the nineteenth century an intense debate opens on what some call the dark side of Darwin. In many cases this debate

takes on drastic tones and the Darwin of *The Descent* is frequently accused of fuelling eugenicist, racist and macho drifts. Recently, on the occasion of the 150th anniversary of the publication (February 24, 2021), Augustin Fuentes made a decisive but equally unoriginal stance, in an editorial in *Science*, when he warned against taking all Darwin of *The Descent of Man*, uncritically: «*Descent is a text from which to learn, but not to venerate*».

Despite these correct clarifications and critical distances, *The Descent of Man* is a masterful, intriguing and stimulating reading – also useful for discussing errors and trivialization – a reading that should be strongly promoted and adopted in schools and certainly in the university for its formative and informative value and, above all, for the free, profound and current debate that it can stimulate.

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