Disenhancing Animals as a Path to Harm

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Abstract

Even if it is still considered utopian to contemplate the end of meat industry and the adoption of a vegetarian diet worldwide, we are far beyond the point where the suffering animals are exposed to in meat factories can be denied. Therefore, faced with the reality that the meat market will not cease to exist overnight, ethical inquiry has been pursuing new strategies to safeguard animals and their welfare. The cutting edge technologies at our disposal, especially in the genome editing field, provide an opportunity to reach a compromise between the parties. Hence, one of the measures that has been put forward is to alter these animals genetically in such a way as to reduce systemic suffering. This practice consists of genetically engineering certain traits or capabilities of the animal and has been referred to as "disenhancement". The purpose of this article is to point out how, considering purely the welfare dimension, the plan raises, among others, two main issues: firstly, it emphasises the "objectification" problem, i.e., the assumption that the animal is a non-autonomous entity that we can exploit for our own benefit; secondly, it runs the risk of reinforcing the food industry's plan, providing a new foundation for animal killing.

Keywords: disenhancement, non-human animals, welfare, bio-objectification, killing

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1.   Disenhancement: The Reasons Behind the Project

It has been now exactly ten years since Adam Henschke's *Making Sense of Animal Disenhancement*. Today as then, the opening lines perform, at least partially, the same introductory task:

> We currently live in a world of high consumption of meat and animal products. This is new. While humans have certainly been omnivorous for much if not all of our history, the proportion and amount of meat and animal products that we are consuming is at its highest in history. The average person in the developed world consumes more meat and animal products than at any other point in history. (Henschke, 2012, 55)

When Henschke's article appeared in 2012, *per capita* meat consumption was reported to be 41,35kg on average (FAOSTAT). In 2019, almost ten years later, there has been an increase of a couple of kilograms to 43,16kg on average (FAOSTAT). In his article, Henschke started off by showing the exponential growth in meat consumption by presenting data from the 1970s onward, examined then some forecast data, according to which by 2050 meat consumption will have reached 52 kg per person, and thus identified this unstoppable growth as the root of the inevitable urge for animal disenhancement: "to continue producing meat and animal products in such vast quantities brings moral concerns about the suffering and rights of the animal themselves" (Henschke, 2012, 56).

According to Henschke, the intensive exploitation of animals in the food industry is a concerning and unquestionable reality. However, two further points deserve to be mentioned in depicting the current situation. The first one is related to the notion that we may be approaching the peak of meat consumption (Whitton et al., 2021). The food industry could therefore now face a slowdown in meat production, with consequences for factories' earnings. Among several other reasons, such a situation is also caused by a rise in the number of vegetarians or, at least, people starting to reconsider the issue of animal welfare and the brutality and suffering experienced in factories and slaughterhouses. The second point refers to a process of diversification of consumption within the meat market. Although the average level of meat consumption per person stays high, with even a slight upward trend, variations in consumption of different species of animals used in the meat industry are observed nowadays. There is indeed an increase in the consumption of poultry, with a consequent decrease in other livestock, particularly beef and sheep (OECD-FAO, 2021; Whitton et al., 2021). First of all, this outcome is due to the fact that poultry is claimed to be healthier than other types of meat (Marangoni et al., 2015); secondly, there is a widespread idea that the poultry industry is less polluting than the others (actually, there is no agreement on this statement, rather still a debate between those who support the theory that the poultry industry has less ecological impact (Leahi, 2019), and those who argue that there is no

difference between the pollution produced by livestock (Garces, 2019)). Thus, we have a depiction of the overall picture. The meat industry is currently being forced to increase poultry production and, at the same time, to deal with growing concern for animal welfare which, in the "worst" case, can lead to the abolition of meat-based diets.

The animal disenhancement project could therefore provide a compromise between two parties: those promoting and demanding a reduction in animal suffering, and the meat industry which, in order to continue to grow, needs to overcome and avoid objections and criticism. Henschke argued that, when assessed in a wider context (social institutional), "the reasons for animal disenhancement are not the creation of animals with reduced capacity to suffer/for self-awareness, but are the increase of profits and/or the increase of meat production, whilst minimising criticism" (Henschke 2012, 63). The issue with such criticism is that it erroneously implies the comparison, as stated by Schultz-Bergin, between the world of disenhancement and "an ideal world, one where there is no industrial animal agriculture, or even use of animals at all" (Schultz-Bergin, 2014). In contrast, a work of ethical enquiry must be carried out by considering not the shortcomings in comparison with an ideal world, rather the improvements respect of the current one, where then "the current system minus at least some of the suffering seems a morally proper move" (Schultz-Bergin, 2014, 107).

This topic has raised numerous issues over time, from the question of animal rights to the inviolability of natural boundaries and the "playing-God" argument, as well as the "yuck" factor. Not to mention the various concerns that have been raised about the consequences for humans and for the environment. What interests this article, however, is solely the perspective of animal welfare and, on this premise, an attempt to answer the following question: can an animal disenhancement project really represent a step forward towards the topic of animal welfare?

2. An Issue of Welfare

Before attempting to answer the question, we should clarify what is meant by "disenhancement". Several authors have seen in the achievements in the fields of gene editing and nanotechnology the possibility of creating for the animals the solution that, according to some, ethical inquiry has failed to achieve. In this sense, a part of the title of Adam Shriver's article is quite emblematic and raises a point: Can technology succeed where morality has stalled? (Shriver, 2009).

Animal disenhancement can be defined as "the altering of animals to better suit their environment" (Devolder & Eggel, 2019). However, this definition does not fully capture the meaning of the practice. The mere expression of "altering" can only partially express the purposes of a disenhancement project, since its opposite,

enhancement, also operates through alteration. In this regard, another term that Schultz-Bergin uses in one of his articles as a synonym for disenhancement may be helpful: "diminishing" (Schultz-Bergin, 2017). Hence, disenhancement can be defined as the process of altering the animal, depriving it of its species-typical capabilities that it would not be able to perform due to modern industrial conditions (an example is the "nesting urge" in hens, unable to engage in nesting behaviour as a result of the environment) (Schultz-Bergin, 2017). It is therefore a matter of identifying those parts, capacities, and functions, that should be disabled or removed, in order to better fit into the hostile environment of factory farms and, consequently, to achieve a reduction in suffering.

Once again, before proceeding to answer the question raised above, let us analyse some examples. Definitely, the emblematic reference case when discussing animal disenhancement is that of (the) blind hens (Thompson, 2008; Sandøe et al., 2014):

> Laying hens either live in cages where their scope for movement is strictly limited, or are kept in large flocks in barn systems or systems with outdoor runs, where they have more space and better facilities, but where they may experience severe feather-pecking and cannibalism (Sandøe et al., 2014, 728).

Blinding the hens, a process already achieved through classical breeding techniques, is helpful in relieving the stress experienced by them. Thompson provides this case as an example of what nanotechnology or genetic engineering can achieve. Another quite mentioned example is the one of hornless cattle (Devolder, 2021; Shriver & McConnachie, 2018; Sandøe et al., 2021). For this case, we already have a number of studies concerning the implementation of such an outcome through gene editing by using CRISPR/Cas9 technique (Eriksson et al., 2018; Deykin et al., 2020; Schuster et al., 2020). This would help in two different ways: on one hand, it would solve the problem of injuries caused by horns, on the other, it would put an end to the painful procedure of dehorning or disbudding young cattle. Now, these two cases presented as exemplifications do not exhaust the many possibilities within the animal disenhancement debate. There is one more instance that could be of particular concern and worth mentioning. When we talk about animal disenhancement we almost always refer to livestock involved in the food industry. However, this overlooks another group of animals exposed to stress and suffering: those engaged in scientific research. Devolder and Eggel deal with this in their article *No Pain, No Gain? In Defence of Genetically Disenhancing (Most) Research Animals* (Devolder & Eggel, 2019), in which they discuss a disenhancement process aimed at reducing suffering by acting directly on the pain receptors. In their article, they also mention the possibility of creating animals lacking consciousness. This strategy resembles one of the two methods of implementing disenhancement, described by Thompson: "Dumb Down" and

"Build Up". In the first one, "researchers identify the genetic or neurological basis for certain characteristics or abilities (such as sight), and produce animals that lack them by removing or otherwise disabling them" (Thompson, 2008, 308). In the second case, by working with cells *in vitro*, the idea is to create a quasi-living organism. Another example related to this second view (at least in the product) is the one of the animal microencephalic lumps (AMLs), organisms that "have just enough brain stem to support biological growth, but not enough to support consciousness" (Schultz-Bergin, 2017, 846). Nevertheless, this article will only refer to the first of these two methods. Due to its assumptions, the second case cannot find a place in this paper, since it, questioning whether a disenhancement project can actually improve animal welfare, cannot address organisms that transcend the concepts of well-being and suffering.

3. Animals as Bio-objects

As stated above, it was decided to adopt a welfare-only approach, leaving out alternative views. This choice was made due to the assumption that animal disenhancement is a project having as one of its main aims the promotion of animal welfare. Therefore, before extending the analysis to other aspects, it seemed appropriate to present some remarks on the same context. Specifically, there are two issues that this article aims to address.

Defining a disenhancement project a win-win proposal, as some claim, may not be a fair statement; for such an expression to be true, the benefits for both sides should be equal, while the advantages in this specific situation would be far greater for the food industry. The point is that, whenever an idea advocates the welfare and reduction of suffering of non-human animals, it has to provide a certainty of improvement, however slight. In this regard, Arianna Ferrari raises a valid point:

> If the problem consists in reducing the suffering of non-human animals while continuing to exploit them, animal disenhancement for animal welfare concerns–provided it works in practice–becomes a matter of balancing harms and benefits. (Ferrari, 2012, 73)

According to this, the challenge is to establish whether the "harming for benefiting" option is actually valid in this specific case, i.e., whether the benefits gained are not only an improvement over the harmful initial situation, but also greater than the harms provided afterwards by the same action. Shriver and McConacchie also address the same question:

> Assuming that the changes themselves directly reduced some suffering, would the diminishment of suffering be offset by losses in positive consequences or the creation of other negative consequences? (Shriver & McConnachie, 2018, 164)

Within this topic of discussion, there are two issues that should be addressed, both trying to answer Shriver and McConnachie's question. The first one, regarding the creation of negative consequences, relates to the risk of a disenhancement project concurring to reinforce the jeopardy of downgrading animals to bio-objects (Webster, 2012; Martinelli et al., 2014). Bio-objectification is defined as the "process by which life is made an object by human beings" (Webster, 2012). The current state of exploitation to which animals are subjected on a daily basis shows that they are already perceived not as ends, but as mere means to satisfy human needs and desires. A proposal for disenhancement carries a serious threat of worsening such situation. Some authors have argued that, although there is a possibility that genetically correcting livestock involved in the food industry would slow down and delay the abolition of factory farms and the emancipation of animals, this is not a valid argument against disenhancement. Katrien Devolder, for example, compared this case to that of the slaves in the United States in the 18th and 19th: "even if it did delay abolition, we surely think that it was morally justifiable, even obligatory, to improve slaves' lives whenever that was feasible" (Devolder, 2021, 208). Yet, this comparison may not be suitable to reflect the peculiar circumstances of animal disenhancement. Any slight improvement in the living conditions of slaves in the USA, although it could have represented a delay in the advent of total emancipation, was nevertheless a step forward in the gradual process of subjectification of the slaves. On the contrary, disenhancement not only prevents a real advance of the same process in the animal world but ends up being a step backwards. If we indeed embrace the assumption that we can alter the genetic make-up of animals, even if with the idea of promoting their supposed welfare, but still in order to continue exploiting them as we please, we are only strengthening the consideration of the animal as an object that can be shaped for human purposes.

Therefore, what implications can this objectification process have on animal welfare? Let us rethink what has been said in the paragraphs above. Disenhancement aims at reducing the suffering of animals, but on the other hand, it is also a project that could help the food industry to avoid criticism and increase productivity in a world where there is a growing interest in the welfare of non-human organisms. Therefore, what would be able to stop companies from continuing to put animals in distressing conditions once they have been disenhanced? Shriver and McConnachie do not share this idea, arguing that "it seems unlikely that a public that has been presented with these welfare improvement commitments by these companies would be easily persuaded to ignore those concerns going forward" (Shriver & McConnachie, 2018, 165). The fact is that disenhancement was also carried out precisely to ease those concerns. Livestock has been genetically modified to suppress those species-oriented features

that made it unsuitable for living free from suffering in the conditions imposed by the food industry. If the primary aim had been merely the promotion of animal welfare, there would have been more ethically sustainable alternatives than perpetuating and implementing the process of objectification. Even though the disenhancement represents a compromise, there is no sign of any establishment of a fair relationship between the parties: the balance still hangs heavily on the side of factory farms. The belief that animal disenhancement for welfare reasons could lead to greater care and attention to the needs and demands of animals implies an idealisation of the world that has been dismissed by this paper. Disenhancement is mainly designed to overcome the difficulties of actually paying attention to the issue of animal suffering.

So, let us assume that companies involved in animal food production are primarily profit-oriented. In pursuing the goal of massive production, and eventually a reduction in manufacturing costs, the risk, therefore, is that disenhanced animals end up living in even worse conditions than before, where not even the introduced genetic adjustments can help. One of the criticisms raised against disenhancement is that it harms animals by violating their integrity and preventing them from expressing those specie-typical functions (Bovenkerk et al., 2002). By contrast, some authors have argued how such an objection "confuses species-level claims with individual-level claims" (Palmer, 2011, 46), and makes "a confusion between the description or conceptualization of certain interests exhibited by a class of individuals and the actual interests of individuals so classified" (Thompson, 2008, 311). This is because any criticism made by comparing them with an animal belonging to the same original species does not apply, because at this point they are two different individuals. As Palmer writes in adopting the non-identity problem:

> As a particular individual, no animal is better off–or indeed worse off–if bred disenhanced. Blind Chicken "A" does not have an alternative life as "Seeing Chicken A". The alternative is a different individual altogether, "Seeing Chicken B". (Palmer, 2011, 47)

However, this statement cannot apply to the criticism expressed in this paper, due to the fact that such criticism isn't directed that much at the disenhancement itself, but rather at the situation that has been set up as a result of the disenhancement and, specifically, at the process of objectification produced and reinforced by it. The disenhanced animal does not suffer because it has been deprived of particular qualities that allow it to fully participate in the life of its species, it is rather a whole different individual that cannot *de facto* be harmed by the fact that it can no longer express those original species-oriented abilities. As a matter of fact, the disenhanced animal can no longer even be considered of the same species, given the changes it has undergone. It may instead suffer because

disenhancement has provided the grounds for an ethical justification of exploitation. Hence, its welfare may still be affected, because it is unable to express and develop its unique individual-oriented abilities. Not to mention the vicious cycle of exploitation and disenhancement that is going to take place every time any new concerns are raised about the living conditions of animals in food industry.

One could then discuss whether this problem could have more wide-ranging implications outside the context of animals involved in food production. In this regard, it would be debatable whether a disenhancement project as a promoter of a bio-objectification concept could impact the relationship between humans and animals in general, such as wild ones or pets. The idea that we can use animals as commodities could shape the perception we have of animals and the way we interact with them, leading to situations where even animals outside of the food production cycle would suffer or would be prevented from achieving their own well-being. Another quite interesting topic of this debate is whether the objection of disenhancement as a bio-objectification issue and thus as a potential perpetrator of new suffering, can also be applied to other processes of genetic alteration of animals, such as enhancement.

However, any discussion of such kind will not find a place in this paper. We can now proceed to address the second issue.

4. Harming by Killing

Resuming Shriver and McConnachie's question introduced in the previous paragraph, the second issue which has now to be considered regarding the second part of the query is the following: would the diminishment of suffering be offset by losses in positive consequences?

It has been assumed before that a disenhancement project could result in an increase in the food production of factory farms. Animal disenhancement may be able to appease consumer criticism concerning animal treatment on intensive farms as well as to overcome the imposed standards of quality of life for such animals. The claim being advanced in this last paragraph is that disenhancement would advocate the killing of a multitude of animals. However, even assuming that disenhancement would not lead to a rise in the number of animals slaughtered on factory farms, such project would still be guilty of numerous killings. It has been already mentioned above that the purpose of this paper is not to compare the world of disenhancement with an idealised one, but rather with the current one. Therefore, the statement that disenhancement is to blame for the deaths that constantly take place in meat food production, is not meant to point out that even in a world where animal diminishment has been achieved, factory farms continue to exist and to kill animals. What we are trying to say, instead, is that a project of animal

disenhancement ends up slowing down that process of attention and care towards the animals, of which the proposal of disenhancement itself is a consequence.

If more animals are bred on factory farms, then more animals are harmed when they are killed. The debate on animal welfare rarely involves the question of death, especially in relation to the argument that killing the animal would harm it. It is usually suggested that "although we have strong reasons against animal cruelty, we lack strong reasons against painlessly killing animals in the prime of life" (Harman, 2011, 726). According to Elizabeth Harman, such a statement is defined as the "Surprising Claim", which she summarises as follows:

> While there is something deeply morally wrong with factory farming, there is nothing morally wrong with "humane" farms on which the animals are happy until they are killed. (Harman, 2011, 727)

We can mention two of the arguments Harman puts forward to refute the "Surprising Claim". Her argumentative methodology is structured in three parts. At the beginning, she proposes a thesis that supports the validity of the "Surprising Claim". Then she refutes it, proving its falsity. Hence, she also finally rejects the validity of the "Claim". The first thesis is based on the assumption of an asymmetry between harming and depriving of positive benefits (or positive consequences according to Shriver & McConnachie), such as future beneficial experiences. This argument is based on the supposition that when one is harmed, "it undergoes something that is in itself bad, but a being is not typically harmed when it is merely prevented from something good" (Harman, 2011, 729). Nevertheless, she argues that badness consists precisely in being deprived of the good, in this case of future experiences. Furthermore, she claims that while not being able to obtain benefits does not necessarily constitute a harmful circumstance, interfering in the existence of another individual, depriving her or him of a benefit, is harming said individual. In her article *Can we Harm and Benefit in Creating?*, trying to solve the "non-identity problem", Harman writes: "An action harms a person if the action causes pain, early death, bodily damage, or deformity to her, even if she would not have existed if the action had not been performed" (Harman, 2004, 90).

The second view to be rebutted is the following:

> When a person dies, she loses out on the future she would have had. She had expectations, hopes, plans, and dreams that are thwarted. Animals, however, do not lose out on their futures. They do not have the right kind of psychological connection to their future lives to be losing out on them. (Harman, 2011, 730)

As far as this topic is concerned, the intention is to present two different confutations: the first is the one proposed by Harman; the second by this paper. Her analysis focuses on the initial premise, which is that death is bad because it

frustrates plans and desires for the future. She argues how this premise is false, as death represents harm in any case, even in the absence of plans for the future. In support of this, she suggests the example of an individual who constantly lives in the "moment", without plans or desires for the future. Such a person undoubtedly enjoys life and would be harmed by losing it, but without plans or desires being thwarted. The same would be true for the animal: death would be harmful to it as deprivation of a future life, even though said animal has no plans or desires.

Instead, this paper would like to focus on the second premise, namely that animals lack the mental basis for self-awareness as future-oriented individualities. Aaron Simmons argues that "one of the main rationales for this belief consists in the thought that while animals do have a basic interest to avoid feeling pain, they do not have an interest in continued life" (Simmons, 2009). However, Simmons himself refuses to give animals the ability to project themselves too far into the future. He specifies how, given the abilities of animals, it makes no sense to speak of death as a harm because it frustrates future preferences, since we are not even sure of the existence of a continuing conscious subject. Regardless, he endorses the thesis that animals have desires and enjoyment from the fulfilment of them. The acknowledgement of this capability is important for the discussion in this paper. It allows to discuss animal welfare not only in terms of pleasure and pain, but also on grounds of desire satisfaction. Simmons strongly agrees with the idea that killing an animal means harming it: "death is one of the greatest possible harms for these animals" (Simmons, 2009). But it is not the long-term desires that are frustrated, but the present ones. The killing of the animal prevents it from permanently experiencing the enjoyment derived from the constant and ever-present fulfilment of its desires. Although Simmons ascribes short-term desires to animals—what De Grazia calls "proto-desires", which are fulfilled in "proto-intentional" actions (De Grazia, 2009), what he says, however, allows us to state that animals that are killed are also deprived of future benefits, and therefore harmed.

Several studies have shown that animals are aware of themselves as individualities in a timeline, as they understand the notion of the past and can project themselves in a future that they can somehow plan. Let us consider hypothetically these two cases. Leaving primates aside, an interesting example is that of the scrub jay, provided in *Can animals recall the past and plan for the future?* (Clayton et al., 2003). Those specimens that had experienced the theft of other bird's caches, once they were no longer observed, changed the hiding spot of food they had previously cached under the gaze of the others. Those who had not had the same experience did not behave in the same way. This showed that the action taken was not based on the presence of a potential observer-thief, as all the scrub jays were observing each other while caching, but on previous experience of stealing that only some of them had witnessed. Hence, these birds were able to

process past information in order to reprogramme their future actions, in this case related to a caching strategy.

As a second example, a study on the psychology of cows shows that they exhibit a certain psychological complexity (Marino & Allen, 2017). For example, they have good spatial cognition, which "refers to the ability to acquire knowledge of, remember, organize and utilize information about spatial aspects of one's environment, including navigation and learning to discriminate and prioritize the locations of objects" (Marino & Allen, 2017, 479). Moreover, cows showed good discriminatory abilities not only between conspecifics, but also between a wide range of stimuli: from geometric shapes and colours to humans. The two authors confirm that there is "evidence demonstrating cows have well-developed discrimination and spatial cognitive abilities and are capable of not only complex learning but feats of long-term memory" (Marino & Allen, 2017, 479).

Of course, these are only small examples that do not mean to state with unquestionable certainty that the ability to shape long periods of time in the future according to one's own desires is widespread in the animal world. However, in contrast with common opinion, we can say that in many animal species there is the capacity to place themselves in time as desiring beings, even if not projected too far into the future and this is enough to support the thesis that has been put forward in this paragraph. Simmons' statement referenced above reinforces this claim. We can therefore say that killing harms animals by causing them to lose the good consequences, whether near or far in time, associated with the continuation of life. Thus, if an animal disenhancement project promotes the persistence and proliferation of animals killed for food, then such a project is against animal welfare, as it harms it.

There is one last point that is worth addressing and it concerns the issue of euthanasia. Euthanasia is defined as "painless killing" and it "should be done for the sake of the interests of the affected animals" (Kasperbauer & Sandøe, 2015, 21). The objection that could be raised against this paper is that killing factory farm animals is in their own interest. This is because such animals, under the conditions to which they are subjected, would not be able to fulfil those desires and realise those plans discussed above. If we also add the possible suffering and pain that the animal would experience, its killing would be morally justified, as it would end a life that is not worth living. Nevertheless, we are not discussing the killing of "normal" animals—and even then, the moral justification for killing animals that have been deliberately reduced to a life not worth living would have to be disputed—but rather of disenhanced ones. However, disenhancement has been presented by its advocates as a project promoting an improvement in animal life. Therefore, trying to justify the killing of animals as a way of defending their interests by putting an end to their suffering from a miserable life is acknowledging the failure of the disenhancement project. The resulting situation is nothing more

than a paradox: if you want to define the killing of animals as an extreme way of defending animal welfare, then you have to agree that disenhancement has failed.

5. Conclusion

The purpose of this paper was to try to figure out whether a project of disenhancement of animals used in factory farms would really embody an improvement for their welfare. However, the two issues discussed above reveal how this project poses threats to such welfare. These concerns do not directly address animals undergoing disenhancement, as for instance Sandøe's considerations about the implications of blindness on hen welfare do (Sandøe et al., 2014). Rather they consider the possible effects that a disenhancement project may have on the surroundings in which the animals live, and only then consequently on their welfare. Thus, even if creating blind hens were to succeed in its narrow goal, the whole condition established by the disenhancement would still provide harmful experiences. We are aware of the fact that whether disenhancement "would slow down the transition to better solutions is an empirical question that is difficult to answer" (Devolder, 2021, 207). Yet, this is still a compelling objection that should not be overlooked in any debate concerning animal disenhancement.

Acknowledgements

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