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Pink Chicken Project

Nonhuman Nonsense¹

Introduction

The Pink Chicken Project (Figure 1) is a story to build other stories on; a speculative stirring that ties together multiple interlocking systems of ecological and social crisis. Seemingly paradoxical, the project rejects the current violence inflicted upon the non-human world, but is itself an act of violence through the non-consensual modification of the bodies of billions of chickens. It poses questions concerning the impact and power of synthetic biology and gene drives, but uses the very same technologies to formulate the critique. It highlights the unfathomable scale of industrial agriculture and factory farming, while at the same time depending on these systems as a vessel for its manifesto.

Figure 1. Pink chicken with future stratum of the Anthropocene



Image: Nonhuman Nonsense

¹ Nonhuman Nonsense, Leo Fidjeland & Linnea Vågglund, Sweden. E-mail: hello@nonhuman-nonsense.com.



The intention of such contradictions is an attempt to allow complex entanglements to remain complex, an invitation to think about “why?” A move to re-invigorate the public imaginary in an ecological discourse that must include issues of social justice in order to achieve the radical restructuring of society needed to break the death grip of the sixth extinction.

Framed as an activist campaign, this speculative suggestion reveals the intimate link between social and ecological justice, and allows us to think about the impact of novel biotechnologies from multiple ethical and political perspectives: why should we seek or avoid this particular future? How does the violence of entire-species genetic modification compare to the violence already inflicted on billions of chickens in factory farms? How can we have ethical relationships with other species in a shifting landscape of human-nonhuman power (Figure 2)?

Figure 2. Stratum of the Anthropocene, Cumbria, UK, c 400 million years in the future.



Image: Nonhuman Nonsense

Between utopia and dystopia

The Pink Chicken Project began with the launch of a website (Nonhuman Nonsense, 2017) describing (roughly) how a recent breakthrough in biotechnology makes it possible to change the color of the entire species *Gallus gallus domesticus*.



Being the world's most common bird, the bones of the 60 billion chickens that are killed every year leave a distinct trace in the rock strata (the earth's crust), a marker for the new geological age—the Anthropocene.

To re-occupy this identifier of our age, the project suggests genetically modifying a chicken with pink bones and feathers, using a gene from the insect cochineal to produce a pigment that will be fossilized when combined with the calcium of the bone. Spreading this gene with the recently invented Gene Drive technique, the species could be permanently altered, on a global scale, in just a few years. Thereby modifying the future fossil record, colouring the geological trace of humankind, pink!

Pink is a symbolic color, an opposition to the current global power dynamics, that enable and aggravate the anthropocentric violence forced upon the non-human world.

As geologists work to formalize (Steffen et al., 2007) the stratigraphic signals of a reconfigured biosphere, chicken bones are (surprisingly) a suggested identifier of this new age. (Bennett et al., 2018)

Developed in dialogue with the Anthropocene Working Group (Subramanian, 2019), the Pink Chicken Project reveals the immense scale of this terraforming enterprise, by showing how the yearly raising and slaughtering of 60 billion chickens around the globe has deep time reverberations (Figure 3).

Figure 3. Pink Chicken Fossil, Scunthorpe Poultry Processing Site, UK, c 80-83 million years in future.



Image: Nonhuman Nonsense

The project discusses how the naming of the epoch as “Anthropocene” has been widely critiqued (Davis & Todd, 2017) for implying that ecocidal logic is inherent to “human nature”, a reasoning that erases the power differentials of colonialism and social injustice that underpin and drive the extractivist mindset of capitalism.

Even though alternative framings might be preferable, such as Haraway’s Chthulucene (Haraway, 2016), the all-encompassing epochal view can be useful to see our ensnarement in multiple interlocking systems that are in crisis simultaneously. A pink “Gene-Drive” broiler finds itself entangled in a perfect storm of climatic, extictional, and biogeochemical exhaustion (Steffen et al., 2015).

Inspired by Kathryn Yusoff’s (2017) short essay *Project Anthropocene: A Minoritarian Manifesto for Reoccupying the Strata*, the Pink Chicken Project claims to *physically* re-occupy the strata, by encoding a message into the genome of the chicken. Using an algorithm of high-density DNA data storage (Erlich & Zielinski, 2017), the message is converted into As, Ts, Gs, and Cs, and injected immutably into the rock strata through the fossilized chicken bones:

We the humans of planet earth, write this message at the beginning of the Anthropocene.

The current devastation of the planet is not the result of activities undertaken by the entire species *Homo Sapiens*: instead it derives from a small group of humans in power, upheld by the injustices of white supremacy, colonialism, patriarchy, heterosexism and ableism. We urge you to fight this oppression: for it enables and aggravates the anthropocentric violence forced upon the non-human world.

Sent in hope that you have re-imagined us as a biological organism, joined in symbiosis with each other and the planet.

Due to the chemical stability of the DNA molecule, this message would be a time capsule readable for thousands of years (Allentoft et al., 2012), cautioning future generations about social injustice being linked to the ecological disaster that is the Anthropocene.

Genetic forcing

Developed in collaboration with a leading synthetic biology lab to ensure that the scenario is scientifically relevant, the idea to use a gene drive came from the researchers (Figure 4).

This recently invented method to rapidly spread a specific genetic modification through entire populations, is based on the gene editing tool CRISPR (Oishi et al., 2016). By embedding the CRISPR machinery itself into the genome of the chicken, i.e., the cas9 protein and the guide RNA sequence, it creates a self-propagating gene editing mechanism (Figure 5).

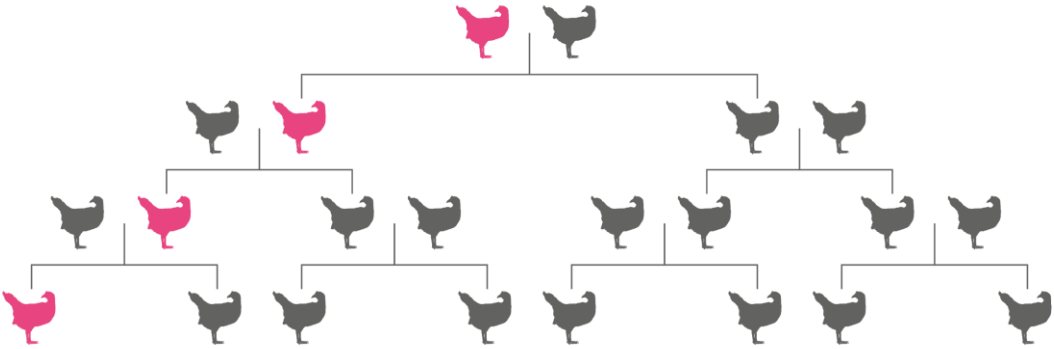


Figure 4. Pink Egg in Bio Lab

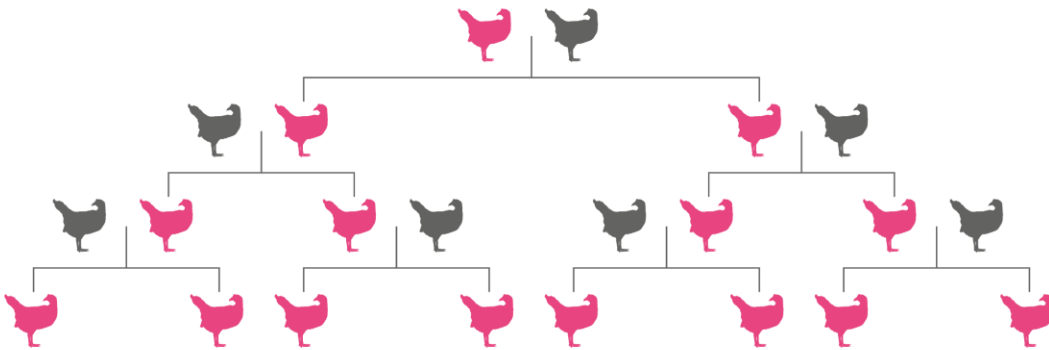


Image: Nonhuman Nonsense

Figure 5. Normal inheritance & gene drive inheritance



Normal inheritance - pink gene does not spread



Gene drive inheritance - alteration becomes permanent

An offspring that is the result of sexual reproduction of the edited pink chicken and a normal broiler, will inherit two chromosomes, one containing the drive and one wild-type. The drive contains a CRISPR system that cuts the wild-type chromosome inside the chicken embryo, causing the cell to copy the drive when it uses the drive-containing chromosome as a template to repair the damage. Because it now has two copies of the drive (and the pink gene), all of this organism's offspring will in turn inherit a drive-containing chromosome to repeat the process (Oye et al., 2014; Wyss Institute, 2017). The pink gene will fully propagate to all individuals in just 12-19 generations, which for chickens in factory farms is just a few years.

Because it is based on CRISPR, this procedure is not complicated. It does not require any expensive equipment, the reagents and DNA sequences are cheap and there are currently no regulations (Brooke Borel, 2016; Kahn, 2016).

The Pink Chicken Project video explains:

With the power of the CRISPR Gene Drive technique, the traces of humanity are no longer in the hands of Monsanto and Dupont, the radiation of nuclear bombs or the oil spills of Exxon Mobil, but also in yours.

United Nations intervention

In November 2018, the Pink Chicken Project intervened at the United Nations Convention on Biological Diversity (Figure 6). At the United Nations, 196 Governments, International Bodies and representatives of Businesses, Education, NGOs and Science, are currently trying to agree on international regulations on “Engineered Gene Drives”—if and how they should be legal. It is a controversial topic, as some voices are describing them as “Biology’s Nuclear Weapon” (Thomas, 2016)—a technology with geopolitical ramifications.



Figure 6. Pink Chicken Project at the United Nations, 2018



Image: Nonhuman Nonsense

At the moment, the discourse on gene drives at the UN and the international media is centered around another possible use case of the technology: to combat mosquito-borne diseases such as Malaria, Zika, and Chikungunya (Scudellari, 2019). However, NGOs and conservationists are highlighting that when assessing the potential impact of novel technologies, we cannot only look at the best possible use case (The Economist, 2018).

Accredited by the University of the Arts London, the Pink Chicken Project went to the COP-14 meeting of the Convention on Biological Diversity in Sharm El-Sheikh in Egypt. Intervening in the assembly, the project held a statement describing the possible future of pink chickens, urging the parties to think more long term about the implications of their decisions: *Zooming out to geological timescales; are we being good ancestors?*

The outcome of COP-14 was unclear and inconclusive (Callaway, 2018), with a treaty that cautions on the risks of engineered gene-drives but contains few actual legal restrictions. The resulting text talks of the “free, prior and informed consent of potentially affected indigenous peoples and local communities” (14/19. Synthetic Biology, 2018), but does not mention if these are human, or nonhuman.

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