THE MUSEUM OF HUMAN VIOLENCE

Biocapitalism

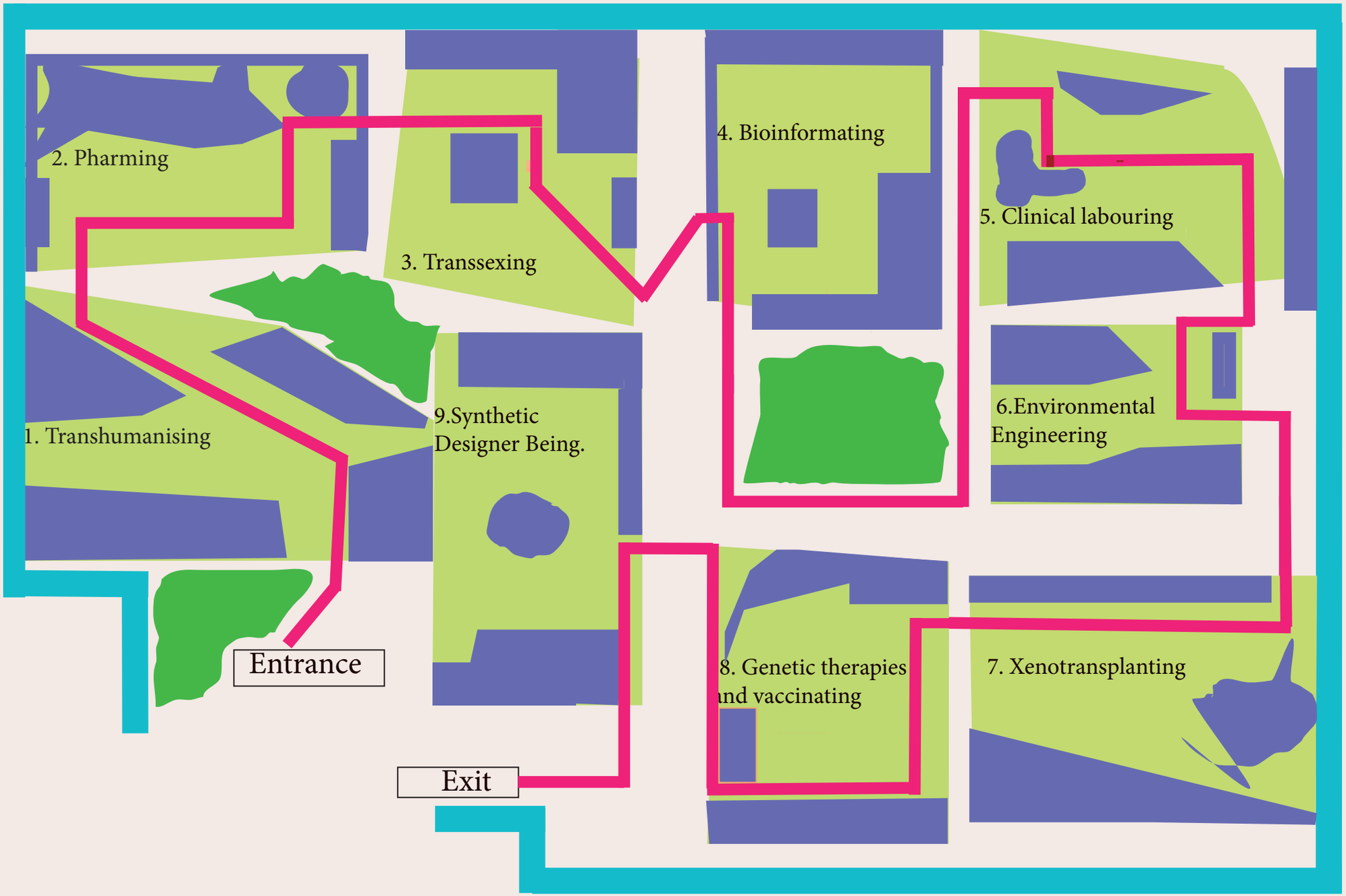
March 2064

Darkness cannot drive out darkness; only light can do that. Hate cannot drive out hate; only love can do that.

- Dr Martin Luther King Jr.

BIOCAPITALISM is the latest Gallery to open in the Museum of Human Violence. The term ‘biocapitalism’ emerged in the early 21st century to mark the growing significance of the life sciences and biotechnology within late capitalism: innovations that controlled, changed and experimented with the material basis of life. Biocapitalism was seen as the new funding priority for ‘public good’ science and the basis of the new genetic revolution. The capitalist economic system of the time ‘highjacked’ this new knowledge. Instead of using it to improve life on earth for all, it was mostly used to make billions for a minority: (in the USA alone the industry was worth $1.55 trillion in 2023)’ all while exploiting and consolidating control and surveillance over non-human and human animals; further artificialising human, non human and plant life, and strenthening the culture (science)-nature binary. This Gallery is organised around 9 key, overlapping, biocapitalist processes:

1. Transhumanising
2. Pharming
3. Transsexing
4. Bioinformating
5. Clinical labouring
6 Environmental engineering
7. Xenotransplanting
8. Genetic therapies and vaccinating
9. Synthetic Designer Being.


2. Pharming
3. Transsexing
4. Bioinformating
5. Clinical labouring
1. Transhumanising
9.Synthetic
Designer Being.
6.Environmental
Engineering
Entrance
8. Genetic therapies
nd vaccinating
7. Xenotransplanting
Exit

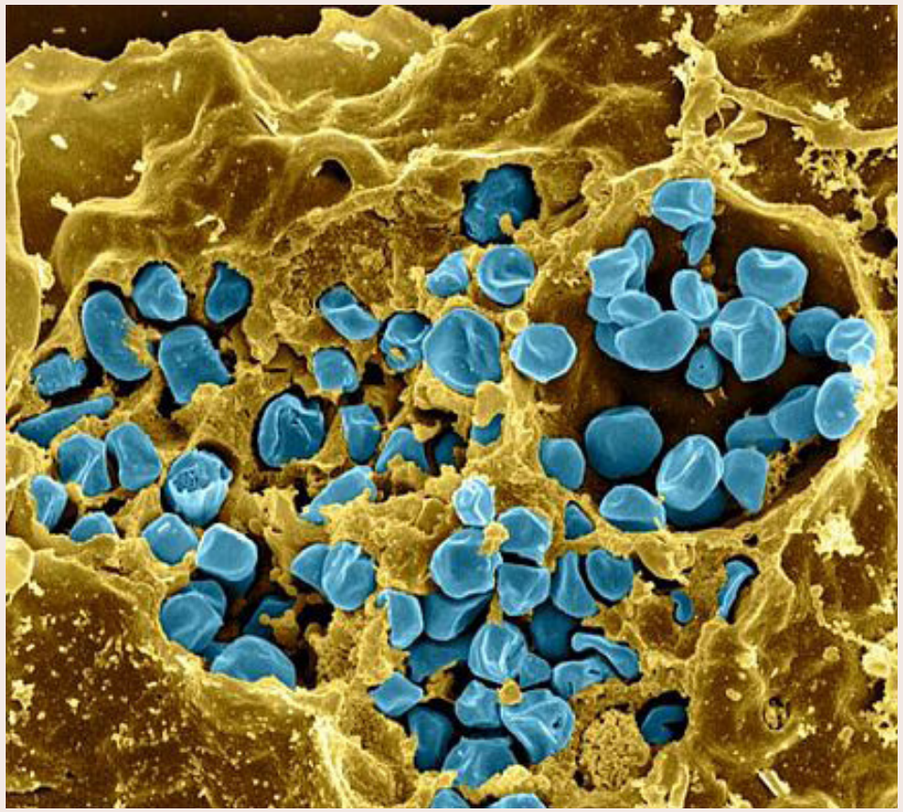
1. TRANSHUMANISING: building beings that resemble humans in most respects, but who have powers and abilities beyond ‘standard’ humans.

Pre-rupture some argued transhumanism was a positive evolutionary direction for humans. However, as with all industries pre-rupture, artificialising ‘mankind’ was driven by opportunistic capitalism, and militarism (early transhuman work was in the ‘defence’, or better named, ‘war industry’). Transhumanism was used to make billions for the few.

Transhumanism failed to critique humanist and modernist beliefs in human ‘exceptionalism’, and in fact strengthened the idea of the ‘superhuman’. It maintained belief in the extrordinary rationality of the human; taking humans further away from understanding the dynamic material interdependce that binds all living systems.

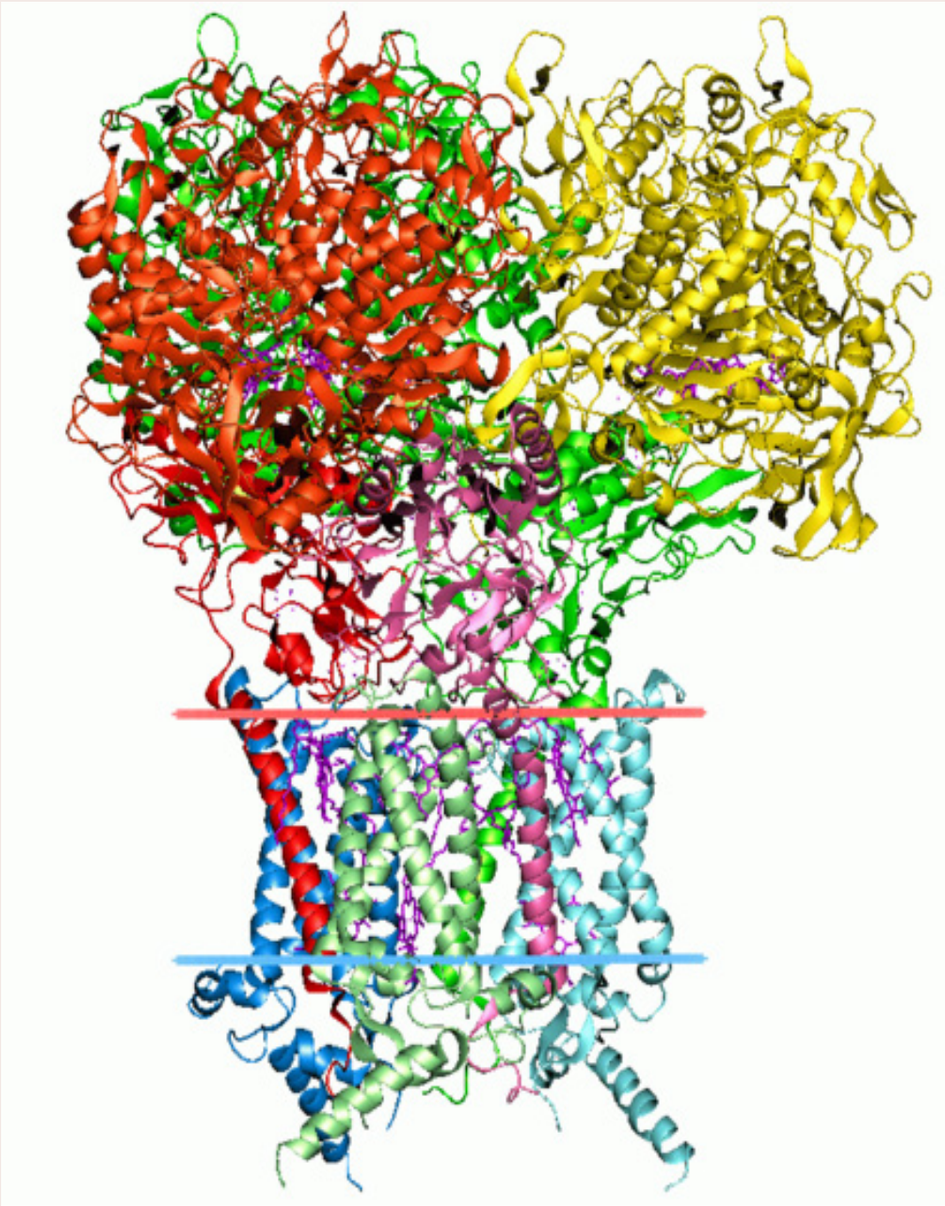
Transhumanism consolidated dominance of the ‘enhanced’ human over both non-human and the marginalised ‘non-artificialised’, humans, through maintining and strengthening the binary culture-nature divide in pre-rupture society. Like other biotechnologies here, it raised questions about what it meant to be human and humanity.

2.PHARMING:Pharming combined the cruelties of farming with being an experimental scientific object. Pharming involved transgenesis: altering non-human DNA by splicing it with DNA from another species. Genetic engineering was to develop knowledge of ‘service’ to humans, e.g, improved feed digestibility, or disease resistence to provide faster/better/tastier ‘meat’; or new drugs for human diseases. The drugs were mostly human proteins,like insulin to treat diabetes. The protein was secreted into the transgenic non-humans’ blood, eggs or milk; then collected and purified. Cattle, goats, chickens, pigs and rabbits were used in this way, either by modifying cells or modifying ovum: the later involved introducing the transgene into the mother’s egg. If it was successful the egg was put back in her uterus, so that her offspring caried the transgene and it could be ‘harvested. Pre- Ruptue, these were hugely profitable and fast growing industries. Non-humans were treated as objects, valuable only for their production of proteins, cells, organs or as food. The fact that they were intelligent,and sensitive; felt fear and joy, isolation and terror, was ignored: they were ‘things’. Because of their genetic,anatomiic, and physiologic similarity to humans, pigs were also modified to model human diseases. These procedures often failed, resulting in illness,trauma,or death of the pig.



3. TRANSSEXING

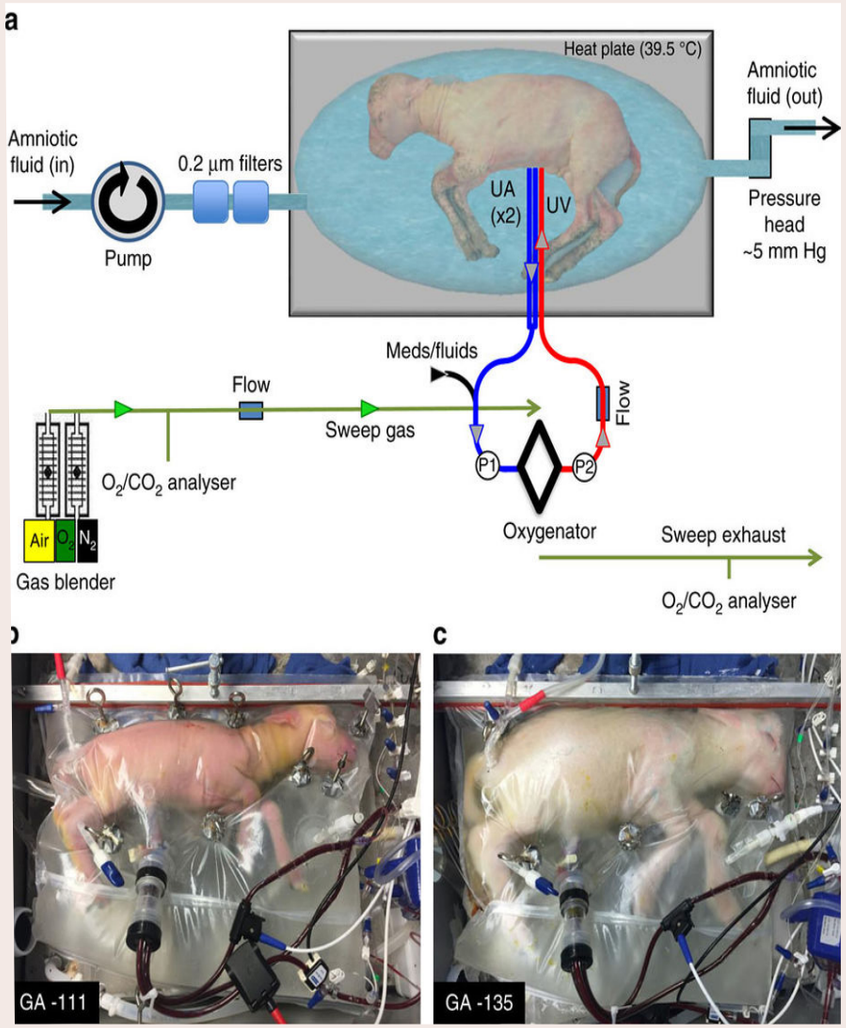
Endocrine Disrupting Chemicals (EDCs) affected the endocrine and hormone systems of bodies,and mimicked the effects of estrogen and other hormones and metabolic processes. Humans, non-humans,and fish were caught up in the transformations of re/production that unfolded as a result of EDCs in the environment. EDCs did not cause everyone to transition sex in the same ways as humans using medically prescribed hormones. But most humans and non-humans came into contact with EDCs. The development of synthetic reproductive and sex hormones through the 20th and early 21st century (which found their way into the water system) was connected to developments in fossil-fuel economies, genetic engineering, plastics and epoxy resins, dyes, computers, mono-mechechanical factory and pesticide\herbicide agricultures, as well as additives in cosmetics and shampoos. The pesticide DDT, the resin BPA (bisphenol A) and PCBs (polychlorinated biphenyl)were all highly estrogenic. Even though DDT was banned in the 20th C. in many places, and levels droppd, PCBs in the production of coolants, pesticides, sealants, PVC coatings, and many home and industrial construction products continued to saturate envronments. BPA in the epoxy resins of hard plastics was also found in homes, offices, cars, and bottled water.



4. BIOINFORMATING

Bioinformatics was an interdisciplnary field that developed software for understanding and analysing biological data in depth breadth and volume. Its primary goal was to support scientific research, including medicine. Amongst other things, it aided genetic sequencing and annotating genones; the simulaton and modelling of DNA and RNA, proteins and biomolecular interactions. Various kinds of bioinformatics developed, e.g, computatatonal evolutionary biology, aiming to trace the evolotuion of different species; understanding the genetics of disease; managing, and compiling databases (data about data).In 2022 the market was estimated to be worth 12.56 billion. Investment from the private sector was based on hope for new drugs; for machine learning and AI in healthcare. North America dominated the market, along with Europe and Asia-Pasific.

One ethical issue with bioinformation related to sharing private information. E.g. in the UK the police had power to take and use bioinformation. The UK had the largest forensic DNA database in the world per head of populaton. The national fingerprint database held 6.5 million records. This useage of bioinformation raised concerns about control and surveillance.



5. CLINICAL LABOURING (CL)

This term is used for reproductive technologies ,including surrogacy, in-vitro fertilisation and the development of artifical wombs.

CL also included genetic testing of parents pre or during-pregnancy to detect specific genetic and/or chromosomal abnormalities. Genetic testing of the embryo at an early stage was also available for children thought to be at risk. The embryo was created in-vitro with sperm injection. If unaffected the embryo was transferred to the uterus.

Surrogacy was available from private companies in richer nations. In some coutries it was illegal. In other countries it was lgal to ‘buy’ a child from a surrogate mother through a private company who charged about 60,000 euros in the early 2020s. Most surrogacy arrangements in the 21st C involved host surrogacy. The egg from the intended mother, or an egg donor, was fertilised in-vitro and implanted in the surrogate mother: the surrogate mother was not genetically related to the child. As gendered labour, surrogacy raised feminist concerns, about bodily autonomy, vulnerability, inequality and rights.

Artificial wombs allowed a foetus to be grown outside the womb in a laboratory. In 2017 the first lamb was grown in this way.

6. AGRICULTURAL BIOENGINEERING:
DNA technology involved adding the DNA of one plant to the genome of another, producing a transgene that was passed on to progeny. and resulted in a transgenic organism or ‘genetically engineered organism’ (GEO). In this way, a “designer organism” was made containing some specific change required for improvement of a commercial strain. Several transgenic plants were produced; genes for toxins that killed insects were introduced in species, including corn and cotton. Bacterial genes conferring resistance to herbicides were introduced into crop plants. Other plant transgenes aimed at improving the nutrttional value of the plant. Bioengineering might have aimed at food security for growing populations. But because of neoliberal and colonising economies,in reality bioengineered plants altered and damaged ecosystems across the world. Bio-colonisation coercively introduced foreign plants and animals. Western biotechnological racist supremacy, enforced by development programmes, involved genetic commodification of indigenous plants, seeds and species through the legal practice of patents, in the form of corporate theft or ‘bio-piracy’ with devastating consequences for cultural and biological diversity. Monocultures (one dominant crop), born from colonial plantation economies, continued in global bio-neoliberalism.

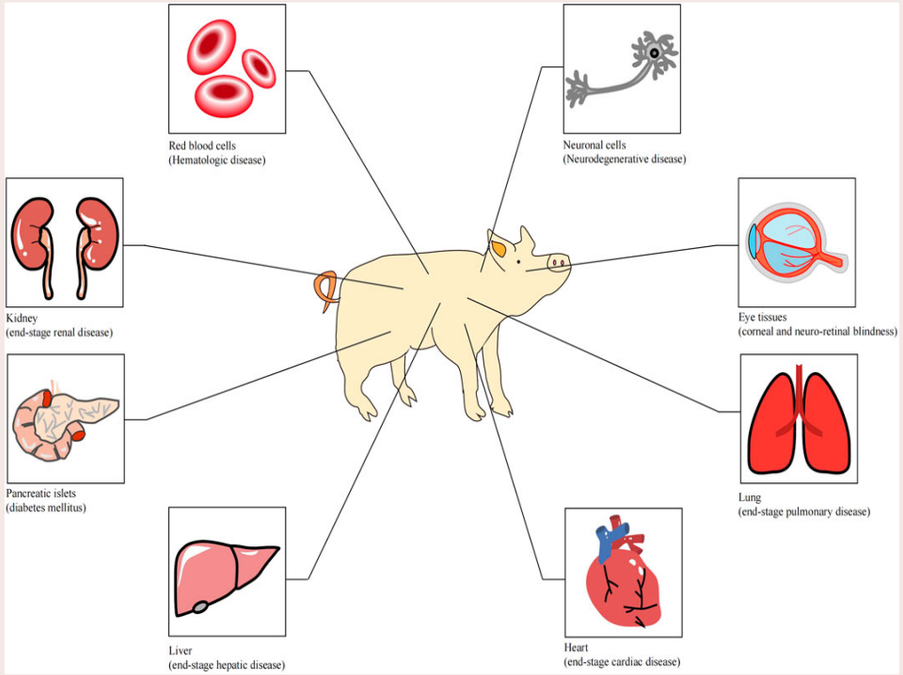


Diagram taken from Xi et al, 2023 . Genetically engineered pigs for xenotransplantation: Hopes and challenges

7. XENOTRANSPLANTING.

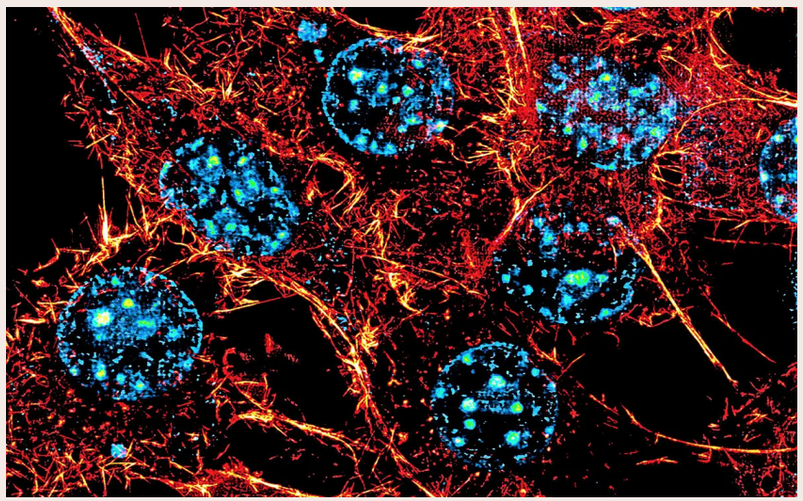
The use of non human products and parts was already routine in human medicine in the late 20th C.Transplantation of whole organs, such as the heart became more common in later biocapitalism. Organs from goats, sheep, dogs, pigs were transplanted into humans from the turn of the 21st C. Early attempts at these transplantations resulted in failure as the organs were rejected, Following these early failures the process of Transgenesis involved the transfer of human genetic material into the pig. The cells of “transgenic pigs” then carried a protective human “armour” of “complement regulating proteins” - the proteins that naturally coat the human cells and inhibit the activation of the toxic complement protein that causes rejection.

The pharmaceutical industry saw transgenesis as a breakthrough for xenografting and invested heavily in this area using breeding herds of genetically modified pigs. As with all exploitation of other beings, transgenesis and transplantation stemmed from the belief that human life was not only superior to non-human life, but a non-human’s life was expendable. It hardly needs mentioning that xenotransplantation was extremely costly and only available to the very wealthy.

8. DNA THERAPIES AND VACCINATING

Personalised medical prescribing was based on a range of new genetic tests to identify drug treatments and gene therapies for individuals. Gene therapies and vaccines were based on recombinant DNA techniques. Gene therapy was the introduction of a normal gene into an individual's genome in order to repair a mutation that caused a disease. The hope was for the transformed cells to prol iferate and produce enough normal gene product for the entire body to be restored to the undiseased state.

Old vaccination methods inserted dead virus or bacteria into the body. New mRNA vaccines, for Rabies, were first trialled with humans in 2013. They were also used on non-humans. They worked by introducing messenger RNA into the body. While DNA is responsible for storing the genetic code, RNA transports the genet-ic material in DNA to other sites in the cell where it is used to make proteins. mRNA vac-cines worked by introducing RNA that corre-sponded to a viral protein usually found on the virus' outer membrane. Cells then produ -ced the viral protein; the immune system rec-ognised this as foreign, and made specialised proteins to 'fight', called antibodies. Pharma-ceutical companies made billions from these new biotechnologies designed to improve health. Ethical questions were raised about whether all populations needed the number of new vaccinations they were persuaded to have.



9. SYNTHETIC BEING.
In the early 21st C. a new phase in biology arose: designing and synthesising new life. SynBio allowed scientists to engage in novel, extreme forms of genetic engineering, that departed from previous modifications. Rather than swapping existing genes between species, scientists wrote new genetic codes on computers, printed using 3D laser printers, and inserted into living organisms – or created brand new life forms using complex algorithms involving millions of variants,
New evolutionary theory stressed the role of bacteria in creating life, and Humans held the unprecedented, God-like belief that they could speed up/control evolution and genetic futures by making synthetic bactera. SynBio's proponents promised miraculous products, from algae that synthesise petroleum-like chemicals to the revival of extinct species like wooly mammoths. They vowed to turn cells into living machines, re-enginee-ring their DNA so that they pumped out what ever chemicals were desired. This optimistic version of biotechnology ignored the power and control of biocapitalism and the new entrepreneurial role of the biochemist: huge investments were expected to raise enormous profits. SynBio raised questions about 'what it meant to be human' and the ethics of interferring in, and changing the genetics of species; blurring boundaries between species;and eradicated other species altogether.

The MUSEUM OF HUMAN VIOLENCE was opened 30 years after the Giant Rupture. It is dedicated to remembering, understanding and forgiving human violence in all its forms in the 20th and 21st centuries, including physical, emotional and spiritual, and including all the seemingly inconsequential acts of violence that lead to normalisation of violence in society. The Museum adopts the International Community Pledge (ICP), borrowed from the Buddhist monk, Thich Nhat Hnhn:

"When you understand you cannot help but love...practice looking at all living beings with the eye of compassion."

The museum is dedicated to the countless billions of non-human and human animals, and destruction of the land, resulting from Human violence before the Giant Rupture. In alignment with the ICP, it stands for the right to peace, protection and respect for all non-humans, humans and the land, everywhere on Earth.

The Museum of Human Violence is a House of Many Rooms including:

* violent economic systems
* violent food systems
* violent political systems
* wars

It also includes collections relating to how violence was normalised and learned, including:

* learning violence: the home
* learning violence: the media
* learning violence: entertainment

OPENING HOURS: TUESDAY-SUNDAY. 10.00 - 17.00 DAILY. FREE