Contagion – 15 years on 01/2020
Written to accompany exhibition
MODIFIED BODY, EXTENDED BRAIN, DISTRIBUTED AGENCY
Laznia, Gdansk, Poland

Resurrecting contagion for the exhibition in Gdansk in January 2020 involved numerous brains and a deep appreciation of those humans who keep outdated spare motherboards for so many years. But how to resurrect and future-proof other immersive, interactive artworks that require old operating system and a complex system of different parts that can all talk to one another years on? This one computer is currently the sole method of displaying contagion, it breaks, there is no show. An aged performer, in this case the performer is the technology and its support crew, the people.

In the process of its' resurrection we discuss the potential of a cloud based system that can imitate old technology – old operating systems and connections and developing this to future proof the exhibition of Contagion, and potentially others works. This is theoretically possible, yet complex, costly and bespoke for each artwork. Perhaps, like performers, these sort of artworks pass away, and are only captured in documentation by other means.

When it was made contagion, like many of my works, used cutting edge imaging technology. Tim Kreger's programming for the interaction was sophisticated and enabled multiple users to interact simultaneously to trigger combined response by walking through a colour and sound palette. Contagion operates in darkness with infrared lights and motion tracking system. The audience appear on screen as fine plumes of coloured smoke moving within a circular palette. This was the first level of interface – painting with human (participants) motion. I wanted the interface to be as simple, playful and intuitive as a child dragging their fingers through different colour paints to combine and mix and play together.

It's only when people connect with one another, interact, that the colour mixing process can be contaminated, or, if unfortunate, collide with the invisible black smoke, the 'viral agent', and potentially become infected. In the contagion sense this triggers images and video footage and participant's presence on-screen can die or recover.

Infection, contamination, mutation, all negative terminology, are also learning, growth, evolution and in this sense can be seen in many ways- our brushing against strangers even momentarily can influence our understanding of ourselves and the world, change the course of our life even. The risk of contamination or the risk of no contact: which is less likely in the long term to damage? Our self-consciousness prevents at times us from sinking deep into the present, engaging with things outside of our comfort zone, doing something new, talking to strangers or event just playing (in the artwork). Without total focus it is hard to perceive the buried images in the shadows and disparate references that are like dots to be joined – connections that make pathways to understanding the deeper content. In this space the audience are both the participant and observer, instrumental in the spread or containment of 'infection'.

Initial ideas for Contagion were developed during a stay in the isolation ward of Dundee Hospital, in 2000, where I was under observation suspected of carrying the deadly Ebola virus. I learnt a lot about viruses. The incubation period, or the time for which the virus is infectious without the host knowing plays a critical role in how successful the virus is. I only learnt that they thought I had Ebola by a friend plastering the newspaper against the room window stating 'Lecturer from Dundee with suspected Ebola after visiting Ghana. She…. Ebola kills 99.8 percent of people …organs explode… " and so on, .. comforting. I was interviewed by Tayside health authority who wanted to know my contact with animals whilst in Africa. Three times. Once with live chickens (there are no fridges – chicken for dinner is bought live). Second time picking up a baby goat who's flesh undulated in my hands – worms or whatever. The third time – ahhh, yes… I filmed for a day in an abattoir. (the look on their faces was priceless).

My arts practice had reflected for some time metaphors of mutation and infection. And now the analogies between virus, image, memory and gestation became of extreme fascination and relevance.

I moved to Australia in 2003 where the ideas for Contagion were reshaped as a result of the input from epidemiologists and observing the paradoxes raised by Australians geographical location and cultural attachment to the west. Greek, Macedonian, Serbian, Italian, families just in our street all considered home to be their country of ethnic origin. in 2003 the Australian continent was an island with the same population of Greater London and 50% of the Melbourne population was Asian.

The two pandemics that affected the 'first world countries' during my time in Australia were SARS and human variant avian flu (bird flu). Both of these have been evidenced as having originated in Asia.

The successful containment of public health risks depends on the countries epidemiological and laboratory capacity and the adequacy of surveillance systems already in place. It also depends on the ability to contain the virus.

Epidemiologists tracing the spread and patterns of infection also, by way of this, investigate human behavior and human movement, both on an individual level and as collective, swarm behaviors. This is looking at a broad and complex interrelationship of disease, food supply, human densities, habit patterns, number and distribution of hosts, the life-cycle of the virus, immunity, susceptibility, evolution and mutation of viral strains. We attempted to translate these considerations for the programming of Contagion. When people are afraid they fly 'home'.

How do you quarantine or isolate communities such as Australia? The ethical complications surrounding border control, the denial of visas and electronic funds to travel are so relevant now in Europe (and I write this as someone still living in Europe and potentially in near future to only be living in England, a small island surrounded by ex's) but now our focus is not on biological disease' but cultural infiltration '. For biological contamination would isolation in a totally electronically dependent migration system be simple? Who would be administered vaccination (already out of date due to the speed of mutation of the virus)? Who would be permitted to travel out? Or would the virus spread before awareness grew sufficiently to prevent international travel? If we don't know about the pandemic, we cannot react, and mass behavior cannot be controlled.

We are controlled by the mediation of information. Discreet systems of production, aesthetics and modes of delivery signify truth and authenticity and the main players adopt quickly the methods of communication thought to be authentic – viral marketing and astroturfing to support invasions of Afghanistan, to spread fear of invasion (or migration), to control elections and decide on world leaders… We collude in all of this.
What we see and how we interpret images/information is based on our innate pre-disposition and physiology. Technologically enabled new ways of seeing Images used as truth, proof and smokescreens to disguise realities, airbrushed beauty and complex graphic visualizations are simultaneously part of the process of abstraction and rendering the world in new ways. We accept and decode, based on our predisposition and knowledge, and If we aren't aware we are seeing then how can we choose not to look or look away? We are saturated in images and information.

Concurrent with making Contagion I also made the Nascent works (2005-6) This was the antithesis to my work with contagion it put me back as image creator, just me and the computer constructing the images and ideas. My work

seems to fluctuate between that which I have more control and I physically make, like one would a painting, and that which I orchestrate and collaborate and craft but the physical making by myself is minimal.

Nascent evolved in post-production on a 20-inch monitor in my front room in a Melbourne Californian style bungalow. Experimenting between single-frame cutting, blending, blurring and echoing 'time' between various software and layers, micro-editing and reprocessing, like a complicated tapestry. It started with Nascent, a single screen dance video with Australian Dance Theater, and developed into three other works for installation in outdoor projection, gallery and theatrical contexts.

The inspiration behind this was the construction of the human spine – the backbone and the support of the whole body. I wanted to take individual vertebrae, the separate organisms, and form a super organism using dancers motion blended into clusters and patterns of movement where individual identity is lost or irrelevant. Thoughts around human behavior, us acting and reacting as a super organism; we hibernate, play dead, attack or swarm. We are predators, scavengers, parasites. We can be altruistic self-sacrificial. Despite fear we lose our self in the pure intimacy and connection with beauty, rhythm and movement, seduced and needing of sublime moments. I needed sublime moments. Perhaps the tight control over the nascent works and extreme detail in image processing and aesthetic, was, retrospectively, influenced by becoming hyper-aware through radical change in environment and circumstance.

The work took on a particular aesthetic as the dancers felt uncomfortable performing naked. Much of the time was spent blurring out the flesh-coloured G-string lines. This started as a problem, but this blurring and blending was fundamental in the development of the works.

In a previous works like Infected, I had been single frame cutting, rendering and re-mapping onto existing layers - from this process for spine I, together with Stephen Dixon developed numerous bespoke expressions - filters that saved time and allowed me to take this much further. These filters/expressions/programs have included 'string vibration' and field flicker'. String works the image like the pinging of a guitar string with variation in anchor points and frequency and field flicker makes it possible to see 50 fields of image- twice which our PAL eye is accustomed to seeing in video/television and rather than seeing 2 image cut together as we would see if single frame edited in 1/2/1/2/1/2/1 method - instead we see two continuous streams of real time apparently uncut motion blending together.

In 2006 I moved back to the UK, to Liverpool and became artist in residence at the Liverpool School of Tropical Medicine where the ideas behind contagion continued. The study of tropical medicine was born in Liverpool. It is a history running in tandem with that of colonialism, international travel and economies of exploration and exploitation: Liverpool ships transported half of the 3 million Africans carried across the Atlantic by British slavers.

Tropical Medicine has subsequently developed into the study of contemporary global health concerns from disease to pandemics. The language of the virus has itself migrated into the language of ideas and notions of the other are challenged through collective intelligence built by communication networks, international travel and migration as well as by developments in science and technology.

I was asked to make an artwork or art intervention for The new Garston Hospital in South Liverpool- it was replacing the old Sir Alfred Jones Memorial Hospital, which was the site of the first tropical diseases unit in the developed world. With warming climates, the mosquito subspecies that can carry the malaria parasite were already prevalent on the Wirral, Cheshire. Notions of 'tropical' or 'otherness' changes when the disease is potentially on our doorstep. In this site human histories and myths, human futures and the futures of medicine could be played out.

This work involved designing the hospital waiting area and garden.
Gardening is one of the most ancient examples of human cultivation of 'nature' and I developed this garden based on the rich history of the Hospital, and of the community.
Garston Pump was the central work in this garden. A sculpture based on the mosquito proboscis set into the ground like a time capsule. It points directly to the last surviving vestige of the old building - the portico and contains references to organic, plant, human, microscopic and machine. It was a novelty and total joy to be included in shaping the ideas for the building from the onset before the old buildings demolition, and more of a joy to work with the community. Endangered trades captured the hands of traditional skills handed down through four generations that were disappearing due to megastores and supermarkets – A Lingerist, baker, butcher, fishmonger, plaster molder, tropical plant handler, amongst some of them. The focus was on their hands and how they had been shaped and developed through a life time of handling specific materials and processes; adapting form to function.

Simultaneous to the Garston projects I started becoming fascinated with the potential of stem cells and new re-

search emerging about the potential to regrow and replace body parts.

In 2000 I had done a residency at PVA media labs and part of that residency was filming and autopsy. I was about 7 months pregnant with my first child. I turned up with camera for the surgeon to come tell me that "because of the Alder Hey organ scandal breaking publicly" I would have to "ask the parents". I packed up my camera and left. Living in Liverpool only years later did I became aware of the real impact that the Alder Hey organ scandal had on this small, familial city.

For those that don't know Alder Hey is a children's' hospital in Liverpool. In 2001 news broke that tissue from deceased children had been retained for research without parent's knowledge or consent. The mediation of this by the mainstream press caused the public to imagine not petri dishes of cells but babies heads in jars. Retaining tissue where consent is unclear or even without consent was common practice, but because this was a children's hospital with parents alive, this became pivotal, political and prompted a fast rewrite of the Human Tissue Act.

We were entering a new era of clinical practice with the development of regenerative medicine, harnessing our previously undiscovered potential to self-repair, with stem cells as a way for the body to regenerate itself and to regenerate others. I was fascinated by the story of Prometheus, the Greek god whose immortal liver was feasted on day after day. This myth invariably provokes the questions: Did the ancient Greeks know about the liver's unique capacity for self-repair? What opportunities did the ancient Greeks have to learn about the liver's structure and function?

There is an opportunity to contrast regeneration through the "natural process" with regeneration through defined techniques and with defined outcomes as pursued by science and technology. Do we seek to imitate nature or bypass nature or subvert nature? How do our attitudes to imitation, manipulation or subversion differ when set in context of human biology the larger ecosystem or, for example, the Olympics? Will we opt for the natural or the augmented? Vanity or for function? Ability or super-ability? With genetic enhancement, regenerative therapies, technological development and bioengineering the notion of 'performance enhancement, has to be redefined. Will it mean that those people with artificial limbs are no longer 'disabled' but performance enhanced? What did this do to definitions of disability? Oscar Pistorius had just been allowed to enter non-disabled international competitions, after years of persistent objections by the International Association of Athletics Federations (IAAF) that his artificial limbs gave an unfair advantage. It is not illegal to cut off parts of your body outside of a medical institution, would

athletes go this far to win?

Steve Badylak at the Pittsburgh Tissue Engineering Initiative Inc. invented 'Pixie Dust' from Pigs bladders extra cellular matrix. The ground down substance forms a white powder that is applied to wounds to prevent scarification and therefore allow continual growth of the tissue – as used in the finger regeneration of his in-law (allegedly) This was since retracted by scientific publications as false/bad science.

I was commissioned by the Deaf and Disability festival to make a short film. I chose the same title, Pixie Dust, playing on the disney-fication of scientific claims.
Pixie Dust 2009 was the start of The Wasted Works. It used quasi-scientific imagery of human limb re-growth presented as evidence of scientific fact, highlighting the pervasive strength of scientific images to portray 'truth', creating a tension between fact and fiction, reflecting the myths, hyperbole and the potentialities surrounding the future of prostheses and regenerative medicine. The works were going to be aired on BBC big screens. There were 22 of these Big screens around the country in city center pedestrianized locations. DaDaFest wanted to attract a non-disabled and local audience and with these criteria in mind, PixieDust became also about the power of magic white powder. Despite initial protests by the BBC and having to add a disclaimer about the non-factual nature of the work, the BBC played this for four years.

The wasted works developed on from this and was about new biomedical possibilities and their social, cultural and ethical implications. They collectively explored the myths, history and legislation surrounding the life-giving potential of 'discarded' body parts and question our views on recycling when it comes to our own bodies. Waste matter from living people is valuable for stem cell research. With informed consent from donors, material including milk teeth from children, hip bones from NHS patients and fat from a private hospital formed the basis of the works in Wasted.

Medicine, technology and ethics have developed exponentially, as has world population. In 1920 the world population was 1 billion, in 2050 it is expected to be 9 billion. We are living much longer and now with the added ability to re-create and replace various parts. With advances in stem cell treatment we can use our bodies to repair ourselves so issues of rejection are eliminated and subsequently our requirement for donor's changes. We, or at least the privileged few, can live longer still. As fossil fuels decrease, 'we' increase. There is an abundance of human material that, with donor consent, could be used for research, or other purposes, but it is currently 'wasted'.

The use (and abuses) of human body parts charts the entwined histories of science, medicine, magic and religion. Parts of the human body have been used as medical treatments. (for example in organ transplants), as amulets in battle, and as gifts to gods. We symbolise the body (of Jesus) in ritualistic ceremonies and devour it. But why are we so reluctant to recycle human matter? And why is there such a taboo, recent in human terms, about using body parts? Perhaps this is related to our notion of 'self' and a reluctance to allow parts of ourselves to be absorbed into 'others'.

We are both enthralled and repulsed by human tissue, living or dead. the presence in artworks of human matter from living patients is physiologically and psychologically intense. The Wasted works has become a journey into the grey areas of UK ethics and the process of obtaining informed consent for the use of tissue that has spanned three years

The framework for tissue harvesting from patients - living or dead was revised after the "Alder Hey Organ Scandal" to prevent abuses to the consensual process happening in the future and to protect patients and their relatives. This opened up new debate about what consent means and how truly informed consent can be obtained. It also imposed new regulations on those working with human tissue for medical research - regulations which in some cases have been described as uninformed political knee-jerk reactions that are not based on practical necessities of medical research or patient care.

We do not legally own parts of our body once medically removed but we have to consent to these being used for medical research. We are not made aware of how our bodies are used in medical research - this could range from cellular lab testing, close range ballistics tests, to body farms for forensic analysis on rates of decomposition in different environments. Just what 'medical research' means is vast. Wasted was treading in virgin territory. The use of human tissue for the sole purpose of public display does not require ethics committee's approval as this is not for medical research. Outside of academic institutions my art work is not considered research. Indeed, at the time of writing this there are no ethics committees with the range of knowledge or experience to approve this work or not.

The vast project team of medical legal and ethical advisors together with the Human Tissue Authority (HTA) concluded that;

"The display of tissue from living, consenting donors

who had already agreed to their tissue being used for medical research,
only required patient consent".

In addition, the issue of what constitutes 'informed consent' is questioned when we are dealing with art-works. Can we ever be fully in control of context in which the works are experienced?

The wasted works were accompanied by debates: A public debate asking is it right to use human tissue in art work. A public debate run by BBC Radio Merseyside and a Roundtable discussion of collaborators and informed experts in this subject area, The art and Ethics Advisory Panel 2009/2013

Palaces was the central work to The Wasted Works. The idea for the Palace really started with my daughter, Saskia, returning from school at 7 years old and saying to me "Just tell me the truth is the Tooth fairy real?". the same week she was taught that Adam and Eve were the first people that looked like we do and in science she was taught basic evolutionary principles and nothing made any sense to her.

I am interested in definitions, classifications, loopholes and grey areas, mediation, choreography in its biological form, the relationship between fact and fiction, religion and mysticism and science… and so on. The grey area between truth and illusion is a powerful area that allows trains of consciousness in the individuals own knowledge and memory. These deep and wide readings are critical.

A palace or a castle represents ancient power systems. protection, a refuge, a place of dreams and magic. the official residence of rulers. Architectural constructs and constructs of the imagined. Palace represents too our belief in these constructs and in established systems of authority. It alludes to belief systems and what we hold to be true or fantasy.

Milk teeth have a particular significance as a symbol of transition and of progress. Stem cells can, allegedly, be extracted from these teeth and may in the future be used to repair or remake damaged organs.

Whilst I am fascinated with the biological potential of regenerative medicine more fundamentally my interest is about ethics. Who, in the future will be able to receive or afford treatment? I'm interested in our shifting attitudes

and taboos in relation to human tissue and our own bodies: When something is removed from our body (in a medical institution) it no longer belongs to us, when something is removed from our body it is classified as bio-hazardous. We are increasingly surrounded by people who have cosmetic treatments that include poisons injected into the body in the name of beauty, cellulose injected into lips, augmentation of many kinds– the fact that the bits augmented may no longer function seems to be secondary to appearance – nipple replacement for example. I'm interested in why people are disgusted about sitting on a chair made from clean good 'n' healthy, unwanted and gifted human adipose tissue but wouldn't blink at getting some unknown source of fat or silicone or whatever injected into their body.

Dr Stephen Corbett from Contagion came to the UK to open my show at the Bluecoat, premiering Wasted and the first UK exhibition of Contagion. He told me that my problem was that I was just dealing with 'worry'. On asking what he meant he explained that part of his job as Head Public Health Officer was to go to an annual tattoo festival just outside of Sydney. There's a small subsect of this community who practiced taking slices of and eating others bodies. This was not illegal as all were adults and had given full verbal consent, so all Stephen was there to do was to prevent disease: i.e. make sure the flesh was cooked properly first.

What I define as new media also includes new access to use media - human tissue in this instance. But objects have historically been made with human teeth, skin, hair, heads even. Medieval medial remedies included 'the rubbings of the gonads of youths', for example. We stopped using humans, not so far back in our western European history, but still use tiger's eyes, rhino horns, fish scales, as more obvious examples. My visit to the concentration camp at 7 years old is deeply buried in the Wasted works. How many bodies fitted in the ovens and the soap made from the fat, socks made from hair and the art-deco lamp shades made from human skin.

Palaces was developed through a need to construct a physical object that was developed through participation and could only be fully realised through participation of many donors. It was also intended for children, references to the deeper motivations to make the work had to be very deeply buried. The tooth fairy helped. Give your tooth to help build the palace. Children provided their teeth, stories, drawings to help make the palace grow. They came and could choose where their tooth was positioned, it was a story about belief and the palace is a beautiful glass-like construction.

It is the proximity to tissue from living donors that is very physical, present and powerful.

Using Human adipose tissue to make 'Canape' Art Deco armchairs stuffed with human fat and Trophies using hip bones from living donors took me on a long journey through legal and ethical processes, institutions and procedures. I worked with the Human Tissue Authority, The Queens orthopaedic surgeon, The Kennedy Institute, the head of Museums and Ethics boards, for the UK and Ireland and many experts. This was at a time when the Human Tissue Act did not include tissue from living donors, they were all assumed dead. I did not need to go through an ethics process as the donors were living. I couldn't go through research ethics process as I was not an employee of a University. It could not go through medical ethics as it was not for medical purposes. Basically all I needed was donor consent but because it didn't come with a bar code nobody knew how to deal with this. After three years we finally obtained bones for Trophies on the condition that they were given to a medical professional qualified to work with human tissue and render them non-hazardous.

The only way to clean human bones without causing damage to their structural integrity is to do what the Natural History Museum do and introduce the bones to their colony of Dermestes lardarius – flesh eating beetles. The World Food Organisation had a monopoly on the breeding of these beetles and the only successful colony we knew of in the UK was at the Natural History Museum, who, after to-ing and fro-ing for a year and passing the buck to various colleagues decided that it was unethical to use human tissue in art and declined our request to use their colony. So Dr Rod Dillon ordered some himself and we started to nurture our own at the Liverpool School of Tropical Medicine. Flesh eating beetles, it was told, ate cat food. This didn't work. Apparently you feed them bacon, this didn't work. The choice and cut of meat got more and more expensive until Rod was buying lamb chops afraid that the colony would die. We eventually found out that they only eat rotting flesh. Which was fine for the beetles, they now had something to eat, but the PhD students next door were not that pleased about the smell.

Obtaining hip bones became very problematic. Given the climate around patient consent particularly following the Alder Hey Organ Scandal, as it's named, there is an acute awareness of potential bad press for the surgeons and institutions involved. After a three year journey I was making a meal as part of an artwork at Metal Liverpool, talking about this process (yes – over dinner!) and one of the attendees said "you can have my hip bone – I'm getting it removed and I am terrified of hospitals, doing something like this will make me less terrified". This statement alone turned everything around. It was not about patient consent, which problematized this for the medical profession, but patient request. The surgeons permitted Anthony Garner to give his removed hip bone for this artwork. but… they first wanted an independent mental health nurse to ascertain that Tony was fit to make this decision. Tony was a little insulted but we decided to just video his consent to me, with witness and put this on social media. The hospital

accepted this as full informed consent.
But obtaining consent for an artwork poses its own problems. Can we ever have fully informed consent when we can never be fully in control of context?

Over the last 10 years of my mum's life she deteriorated with Dementia and Alzheimer's. I could see her slipping away. Her eyes clouding and occasionally vacant, yet her mind seeing people and animals that weren't there and not seeing or recognising the people who were.
We rely primarily on our vision for our understanding of our situation and the wider world – we equate observation with knowledge and truth. The eye has long been thought to reveal something of the person, even the soul. There are various medical conditions can be diagnosed through examination of the eye. Retinal blood vessels give us a glimpse of the condition of the state of the vessels in our body.

In 2014 I premiered 'I' at Lumiere Durham. I is an interactive journey into the body through the eye, projected at spectacular scale. Drawing on advanced biomedical visualisation and biometric imaging and surveillance technologies, the artwork reflects on the complexities of seeing and knowing.
It used the latest iris-scanning technology then used at Schiphol Airport to capture and analyse the iris to provide unique biometric information of each person.
I connects themes of vision, cognition, surveillance and belief. It combines images sourced from various fields of biomedical research, footage of my mum, my daughters, sound from my yoga class chanting and, through an on-site iris scanning booth, unique biometric portraits of viewers themselves. On screen before the iris scanning begins, participants give consent for me to use their image and data for 'this and future artworks'.

Data analysis of each iris scan in this installation determines the following sequences of sound and image. This playful device enables viewers to interact with the work by contributing to it, and seeing their own eyes captured, projected at large scale and finally translated to data. People didn't mind seeing their own eye 12 meters wide projected publicly. Over four nights 2,500 unique scans were collected.

Some works you make, particularly the more recent, you have no idea really where the idea started or why it evolved. I think some of the conversations I had during the making of the wasted works were a starting point to Heirloom (2016) I wanted to make a series of factual works of incidental information I'd found on my journey. One being that Catholics dealing with IVF do use condoms to capture sperm. But as Catholics cannot use contraception,

then technically they cannot use condoms so get around this by pricking the condoms with a pin…. I'll let you think about that one for a bit….

I was also interested in stem cells being used allegedly for cosmetic application as skin rejuvenating serums. Oprah Winfrey testimony to the miraculous effects using stem cell face treatment creams is public. The skin cream was derived from knowledge gained whilst researching and developing skin plasters. When applying patches of skin tissue to burns, it was found that the skin patches healed areas far quicker and prevented some scarification, with women they healed the area and dropped off, but with men they became part of the healing body because of the chromosomal composition of the plasters (XX or XY). The plasters were grown from male sources of skin cells. Apparently one donation could make enough skin plaster to cover a football field. Before Heirloom it was only possible to grow skin from dermal and epidermal source – i.e. you needed a skin plug. There is no way to get deep skin tissue without invasive and scarring procedures. The scientist I was working with said that her institution got theirs from the Rabbi. So Oprah Winfreys' face cream is made from the 'waste' of young Jewish boy's circumcisions. It sounds like this came direct from the 15thcentury Witchcraft weekly.

I wanted to use skin plasters that I had grown to create portraits. I began work with Professor John Hunt. In Heirloom we grow living portraits of my daughters from their own cells cultured from buccal swabs. The art was about culture, nurture and media from scientific, parental and artistic perspectives. Growing skin cells from non-invasive procedures, new growth media and new methods for sustaining life outside of lab were developed for this work, potentially facilitating future DIY biotechnology for others and helping with maxillofacial reconstruction in the future.

Heirloom is fundamentally a personal portrait of my daughters using their actual material as the medium. The portraits sit between representation and actuality, between
the ontological and evidential, weaving together principles between ideas, forms and understanding that asks us to consider our own materiality and values; where between us,
and our cells, identity lies. Inspired by the promise of personalised healthcare with new stem cell therapies and the possible impact this could have on personal identity.

Like much of my artwork, Heirloom evolved from my interest in the complex philosophical and ethical questions, developmental biotechnology raises, through the lens of art. I believe that the impact of my dad surviving the Nazi camps and what I learnt from visiting the Medjaneck concentration camp with him at seven years old has resounded

through my life works.

Professor John Hunt was UKs Head of Tissue Engineering with a specific interest in regenerative medicine with respect to maintaining independent living. In 2014, Gina and John Hunt met to discuss the possibility of growing portraits in skin. In this collaboration beyond all others the distinction between artist/scientist, creator/facilitator and between lab and studio dissolved

The work evolved to a far more personal level and adopted the title Heirloom when I was diagnosed with womb cancer. On the same day that I had a hysterectomy, not knowing the severity of the cancer, Saskia and Lola, my daughters, 11 and 13 years old at the time, were at Johns lab to donate their cells and start the process of cell growth. "Heirloom" is an object of value given by older members of a family to younger members of the same family over many years. This was my 'gift' to my children, the possibility of either reconstructing their faces should this be ever medically required, the ability to rejuvenate their appearances, or owning an artwork of possible value.

The cosmetic augmentation or plastic surgery industry was worth £750m in the UK in 2005, £2.3bn in 2010 and is forecast to reach £3.6bn by 2015. Plastic surgery, liposuction, boob jobs eyelid lifts and lip fillers, through social media are perceived as normal for young women. To aspire to eternal youth and fear of natural consequences of being alive – ageing. What would you want to do – healthy and active: live for 200 years or stay looking like you are 30 and live for 80 years?
What Would you choose.

Saskia and Lola also had their faces cast and the resulting casts were made into glass sculptures which were able to support the growth of the cells in the media. As well as this
ancient technique and materials, we started working with Facelab and scientifically accurate 3d Scanning with Professor Caroline Wilkinson, forensic anthropologist specializing in craniofacial reconstruction.

In 2015 the project took a new turn when invited to take part in Trust Me I'm an Artist, specifically in Copenhagen at Medical Museion. This was the perfect situation and people to complete the work. The Medical Museion embodied the confluence of the history of medicine, the preservation of human remains, our fascination with erroneous specimens, the Danish populations accord to the research biobank, and Danish design, and this focused the development of the work in progress into an exhibition.

In the exhibition the project teams and audience are invited to have their faces 3D scanned and this potentially presented as a 3D print in future exhibitions. In Denmark this takes on another layer of meaning as a high proportion of the population have had their blood samples stored in research biobanks. With this level of 3D detail and DNA, the experiment could lead to the potential of creating genetically and physically identical clones.

The major scientific challenge of Heirloom was to reverse engineer the complexities of the reproducible experiment to enable cells to thrive; to maintain life, outside of the tightly
controlled ideals of the laboratory into a public space using systems and technology where it can survive equally well and develop. The balance required for cells to grow in a closed sealed system is scientifically exciting in its own right. To be able to expand on that and bring so acutely into the public eye enables the social issues to be identified and addressed. Heirloom presented a rare opportunity for science of presenting an ongoing experiment which could digest feedback and develop because of this. It is already possible to create your own 3D face scan using your smartphone and use this as an armature for facial reconstruction. But even with weekly scans of our faces, the question would remain: How far back in time would you want a future reconstruction to go? Would you use the structure of your own face, or of someone else? Now mere video fragments lifted from seconds of footage can provide enough information for creating 3D representations - 'stolen portraits'. The general public awareness through popular culture examples such as Face Off or Hall of Faces from Game of Thrones coupled with recent biotechnical possibilities of full face transplants, blur science fiction with science fact. In July 2016, Saskia and Lola had their faces recast… willingly and without bribery. They were then 15 and 13 years old. Under 18's requires parental consent. They have consented to me and John using their cells and I have consented to allow them to do this…sticky, tricky… but I have also verbally consented to never post embarrassing photos of them online.

Throughout my works the patterns repeat and the route of all the work when asked I suggest comes back to my father's experience surviving the Nazi camps and visiting the Medjaneck at 7 has resounded through my life works. My dad died in 1995. It took me until 2014 to start Koffin, which was motivated by the anger I felt and witnessing the exploitation dealt by the Funeral Directors of people who are at their most vulnerable. In this case my mother being dealt "the more you love the more you spend' mentality of the man showing her the glossy catalogue of coffins. Seeing my dad in a Mock-Victorian, veneered MDF box made to look like wood, with plastic handles for show only made to look like brass, and costing over £1000, and wearing make-up, disgusted me further.

In the last five years I have researched how we deal with what is essentially, the most difficult waste of all. Us. Our bodies. But despite being emotionally difficult we are organic and biodegradable, that is until we are interred in highly toxic MDF and embalmed for eternal preservation with environmentally catastrophic substances. Koffin was inspired by ideological challenges around the rising costs of dying. (75% increase in the last 10 years) the ecological impact of burial and cremation and the Victorian values that dominate the death industry.

Koffin was developed simultaneously as an artwork and as a product. With the intention to soon crowd-fund and go into production as a way to generate an income to support my practice going forward but also to try to challenge the death industry; The cost, exploitation and lack of known choice and mis-information given to people who want alternatives.
The Koffin uses a new material, shape, a new invitation to fully personalise and it is designed to be one of the most affordable. Its made from a purpose designed, 100% natural material it biodegrades like natural wood with no more CO2 content that living plants when burnt or buried. It is not a box or a basket; Its bio-material and is as strong as plastic. It is leak-proof, lightweight, stackable within itself, produces only 17% ash residue unlike traditional coffins 65% ash in cremation.

In 2018 the first full scale working prototype was completed and has been through rigorous testing. Twenty of these koffins have been decorated by people across the country through a national call-out. The express diverse observations, reflections and provocations that question ownership, authorship, taboos, values, traditions and cultural practices. They were paraded through Liverpool and exhibited at the Oratory in October 2018 for Mexican Day of the Dead and All Souls Day. They
have essentially been designed to help people in their grief and try to stop dying costing the earth.

It is about future sustainability; environmentally, economically and emotionally. It's about the healing power of creative expression, diverse statements of" Who We Are Now".