

HEIRLOOM: LIVING PORTRAITS OF AND FOR THE ARTIST'S DAUGHTERS CREATED OUT OF THEIR OWN CULTURED CELLS

Gina Czarnecki (artist), Blundell Street Studios,
63 Blundell Street, Liverpool, L10AJ, U.K.

Email: <ginaczarnecki@gmail.com>.

John Hunt (scientist), Institute of Ageing and Chronic
Disease, University of Liverpool, L7 8TX, U.K.

Email: <huntja@liverpool.ac.uk>.

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Abstract

This article presents the artwork *Heirloom* created by artist Gina Czarnecki and scientist John Hunt. *Heirloom* grows living portraits of Gina Czarnecki's daughters from their own cells cultured from buccal swabs. The resulting artwork is an ongoing exploration in "culture," "nurture" and "media" from the scientific, parental and artistic perspectives. The experiment is ongoing as new methods for sustaining life outside the lab have been developed for this work, potentially facilitating future DIY biotechnology for others and helping with maxillofacial reconstruction in the future. *Heirloom* has been presented within *Trust Me, I'm an Artist*, an EU Creative Europe supported project.

Keywords: portrait, bioart, 3D printing, regenerative medicine

Heirloom is fundamentally a personal portrait. In this instance the portraits are constructed using extracellular matrices nurtured from my daughters' cells: their actual material. These skin-portraits are grown during the exhibition to form full facial likenesses. The portraits sit between representation and actuality, between the ontological and the evidential, weaving together principles between ideas, forms and understanding that ask us to consider our own materiality and values: where, between us and our cells, identity lies.

Like much of my artwork, *Heirloom* evolved from my interest in the complex philosophical and ethical questions that developmental biotechnology raises, using the lens of art. The impact of my father surviving the Nazi camps and what I learned from visiting the Medjaneck concentration camp with him when I was seven years old has resounded through my life works.

It was only when I moved to Liverpool in 2006 that the real impact of the Alder Hey Organ Scandal (the retention of hearts and organs, without permission, from hundreds of children who died at the hospital between 1988 and 1996) became apparent to me, and I started working on *The Wasted Works*.

The Wasted Works is a discursive body of artworks that combine cultural histories, belief, narrative, mediation, notions of ownership and consent, how we define waste in terms of the human body and what is ethically acceptable to do with it. *The Wasted Works* uses human tissue from living, consenting donors, including milk teeth from children, hip bones from NHS patients and fat from a private hospital.

It took years for me, bouncing around through various institutions and individuals, to receive ethical guidance in the use of tissue from living, consenting humans in artworks. My work was not covered by research ethics (as I was not employed at an academic institution) or medical ethics,

and at the time not much was written about living donors. I eventually set up the Art and Ethics Advisory Panel to publicly discuss the question "Should we be able to use human tissue as art?" which in my view constituted an artwork in itself, reinforcing art as performative—not only the material object or residue.

I created *Heirloom* with John Hunt who had worked with artists previously and, as the director of the U.K. Centre for Tissue Engineering, had a specific interest in regenerative medicine with respect to maintaining independent living. In 2014, we met to discuss the possibility of growing portraits in skin, inspired by the promise of personalized healthcare with new stem cell therapies and the possible impact this could have on personal identity. Our collaboration advanced the work and became one of co-authorship.

The work evolved to a far more personal level and adopted the title *Heirloom* when I was diagnosed with uterine cancer. On the same day that I had a hysterectomy, not knowing the severity of the cancer, my daughters, Saskia and Lola, who were 11 and 13 years old at the time, were at John's lab to donate their cells and start the process of cell growth. An 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 of value to my children, the possibility of either reconstructing their faces, biomedically rejuvenating their appearances or owning an artwork of possible value.

Saskia and Lola also had their faces cast, and the resulting casts were made into glass sculptures that were able to support the growth of the cells in the media (Fig. 1). As well as this ancient technique and materials, John and I started working with Facelab and scientifically accurate 3D scanning with Caroline Wilkinson, forensic anthropologist specializing in craniofacial reconstruction.



Fig. 1. The First Growth. The image shows the first growth of skin revealed on Saskia's portrait as the bioreactor is drained. (© Medical Museion. Photo: Louise Whiteley.)

In 2015 the project took a new turn when the work was invited to take part in *Trust Me, I'm an Artist* [1], specifically in Copenhagen at Medical Museion.

The confluence of the history of medicine, the preservation of human remains, our fascination with erroneous specimens, the Danish population's accord to the research biobank and Danish design all 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 (Fig. 2). 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 it so acutely into the public eye enables the social issues to be identified and addressed. *Heirloom* presented a rare opportunity for science to present an ongoing experiment that 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's? 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 the movie *Face/Off* or the Hall of Faces from George R.R. Martin's *Game of Thrones* series, coupled with recent biotechnical possibilities of full face transplants blur science fiction with science fact.



Fig. 2. *Heirloom; The Living System*. Twin bioreactors containing the glass portraits, cell culture and media linked to a circulatory system and peristaltic pump. The fluid enters the bioreactors into the mouths of the portraits. (© Medical Museion. Photo: Louise Whiteley.)

In July 2016, Saskia and Lola had their faces recast. Two years older, they knew the outcome of the work and that it would be shown in their hometown of Liverpool (*No Such Thing As Gravity*, FACT, 11/11/16–05/02/17). We needed some form of clear consent when we took and grew the girls' cells at the University of Liverpool. I had to consent in writing to the use of my daughter's cells for this artwork, which raised the issue of authority and parenthood. Despite the preposterous but necessary formality, consent in this context is ultimately built on mutual trust among all of us. Children's rights are flagged up when they give cells on a cheek swab for use in an artwork, but rights and trust are equally questioned when parents post things about their children online, which I have consented to not do.

Each future exhibition of *Heirloom* will be a living experiment providing multiple outcomes; contemporary art, scientific, social and ethical. It is a beautiful, evolving process, and watching the work develop over time offers a place for debates to evolve. John and I are excited about its potential.

References and Notes

Heirloom has been funded by Arts Council England and developed by *Trust Me, I'm an Artist* series in 2016. *Heirloom* is a Forma Arts Touring Production.

1. *Trust Me, I'm an Artist: Developing Ethical Frameworks for Artists, Cultural Institutions and Audiences Engaged in the Challenges of Creating and Experiencing New Art Forms in Biotechnology and Biomedicine in Europe* is supported by funding from Creative Europe and is a collaboration between Waag Society, Brighton and Sussex Medical School, Arts Catalyst, CIANT, Kapelica Gallery, Medical Museion, Capsula and Leonardo/Olats. The lead artist on the project is Anna Dumitriu, and the lead ethicist is Professor Bobbie Farsides. More about the project can be found at <<http://trustmeianartist.eu/>>.