Next in Life:

Artificial Bodies, Synthetic Nature and Shared Futures

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"As technology is becoming more lifelike and life is becoming a technology, there is a growing need to culturally scrutinize and articulate the meaning(s) of the concept of life. This happens at a time when fact and fake are becoming interchangeable, and the rhetoric of control over complex systems suggests fantasies about human desire for full dominance over the unintentional and constructed world. When it comes to the concept of life, who is calling the shots?"
Oron Catts & Ionat Zurr[i]

When the human genome was sensationally revealed in 2001, humanity had for the first time a genetic portrait of ourselves. From this moment onwards, possibilities imagined by writers, filmmakers and artists became plausible reality. Genes, it seemed, could be programmed just like computers. Life could be designed. In the new age ushered in over the past 20 years, scientists have made technological creations that can mimic, impersonate and simulate human life, and artists have made laboratories their new studios, fashioning artworks from the very fabric of life. Our entire notion of what it means to be human, is shifting, evolving and mutating.

The Future and Arts explores these ideas through challenging contemporary artworks, intriguing design prototypes, demonstrations of the latest technologies, and impressive scientific innovations. The latter part of the exhibition imagines possible futures for the human body, and shows how interdisciplinary work created by artists can ask deep questions about humanity's future.

"Art, at its most significant [is] a Distant Early Warning system that can always be relied on to tell the old culture what is beginning to happen to it."
Marshall McLuhan[ii]

As Marshall McLuhan, and Walter Benjamin before him, noted, art has a tendency to anticipate future social and technological developments[iii]. Art can *"precede the perceptible reality by years"*[iv] offering powerful insights into how society is evolving, and how new advances in urbanism, science, technology and culture are being synthesized. The notion of the artist – especially one engaged with science and technology – as an antenna, picking up on weak signals from the future, is of deep interest to the institution I direct, ArtScience Museum in Singapore. We explore the intersection between art, science, technology, and culture. We believe that it is where these areas meet that we see innovation and new ideas. We like to say it is here, at the interstices, that the future is made.

This was very much on our mind when we staged the exhibition, *HUMAN+ - The Future of Our Species* (2017).[v] The show explored how our perception of humanity is being transformed by science and technology. It asked what it means to be human in a world of artificial intelligence, lifelike robots and

genetic modification. The show examined the possible future path of our species, probing the social, ethical and environmental questions raised by using science and technology to modify ourselves. It featured 40 international artists, scientists, technologists and designers, including many of the practitioners who also appear in *The Future and Arts.*

One prominent example is British artist and designer, Agatha Haines, who focuses on the design of the human body. Her project in *The Future and Arts* is *Transfigurations* (2013). It consists of sculptures representing five babies, each with a different body modification that has been surgically implemented to benefit the child. Each modification solves a potential future problem for the baby, equipping it to better cope with medical, environmental and social mobility challenges. *Transfigurations* asks: how far might parents go to give their child an advantage?

When we consider current biomedical practices and advances, from breast enlargements to neural implants, it is plausible that people will soon design and augment their bodies for new and unexpected reasons - both aesthetic and functional. But what if these augmentations were made for infants? In her practice, Haines raises the question of consent. Are biomedical procedures something we can decide for our children, or should we always seek consent from the person receiving the treatment? With radical body modification becoming ever more possible, what is a valid reason to change the body of a child?

"Art should challenge and provoke, ask awkward questions, disturb preconceptions. Art that engages […] with the biological and biomedical sciences can counteract the hype that sometimes surrounds the introduction of new technologies and interrogate the agendas behind them"
Philip Ball[vi]

Artists and designers are not only using traditional sculptural techniques to raise ethical concerns about the future of our bodies. Many pioneering artists work with the very substance of life itself, growing their artworks from biological material. Chief amongst these are Australian-based artists Oron Catts and Ionat Zurr, who feature in *The Future and Arts*, with their ground-breaking artwork, *Victimless Leather* (2004).

Catts and Zurr established The Tissue Culture and Art Project in Australia in the 1990s, and have since become one of the important artist-groups working with biomedical science internationally. They create artworks using tissue engineering, a technique that uses living cells to manufacture connective tissues. Within their practice as The Tissue Culture and Art Project, Catts and Zurr investigate different gradients of life by growing a new class of object – that of the "semi-living". Their "semi-living" artworks are parts of complex organisms which are sustained alive outside of a body and coerced to grow in predetermined shapes. In 2000, Catts and Zurr created the first sculptures to be presented alive in a bioreactor in an art gallery context.[vii]

During their artist-initiated residencies at the University of Western Australia and Harvard Medical School, Catts and Zurr pioneered the use of tissue engineering for non-medical ends. They were the first[viii] to use this technology to grow meat, back in 2003[ix], and in the following year, leather.

For *Victimless Leather*, Catts and Zurr grew living tissue into a leather-like material, which they fashioned into a tiny garment resembling a leather jacket. Their work confronted audiences with the moral

implications of wearing parts of dead animals as clothing. In this, and many of their artworks Catts and Zurr explored the ethics of working with living tissue. They insist there is an urgent need to rearticulate our understanding of the notion of life in an age of biotechnology.

Catts and Zurr are also the founders of SymbioticA, a research lab at the University of Western Australia. Founded in 2000, SymbioticA was the first laboratory of its kind in the world that enabled artists and scientists to engage in wet biology practices in a biological science department. The artworks created at SymbioticA by its resident artists promote informed critique around the ethical issues of life manipulation. One of the artists showing in *The Future and Arts*, Guy Ben-Ary, is a core member of SymbioticA. Ben-Ary specializes in biotechnological artwork which aims to enrich our understanding of what it means to be alive. For *The Future and Arts*, he presents his monumental work, *CellF*, a synthesizer built using nerve cells from his own skin.

Catts, Zurr and Ben-Ary demonstrate that, in the 21st Century, artists are as at home in the lab as they are in the atelier, able to sculpt artworks from living tissue. Together with practitioners such as Yakushimaru Etsuko, Diemut Strebe, Amy Karle - also on show in *The Future and Arts* - they question deep rooted perceptions of life, and the position of humans in regard to other living beings.

"We are at what I call a 'robotic moment' not because we have built intelligent machines worthy of our company but because we declare ourselves ready for theirs."
Sherry Turkle[x]

Until the age of biotechnology, it seemed that the greatest challenges to our conception of life might come from more mechanical advances. Cinema showed us visions of artificially intelligent robots on such a regular basis that the notion of lifelike machines became almost commonplace. *The Future and Arts* features a range of work which reveals how technological creations can mimic, impersonate and simulate life. From Patrick Tresset's artificially alive drawing robot, to Hiroshi Ishiguro's uncanny androids, the exhibition explores how robots problematize our understanding of life.

Tokyo-based performance and media artist, Elena Knox creates artwork that features humanoid robots. Her work considers ideas about immortality, jobs, appearances, computation, and the 'life' of the robots who resemble us. Several of her artworks have been made using Actroid-F, a human-like robot developed in 2011 by Hiroshi Ishiguro Laboratories in Osaka. Her performance videos featuring the Actroid wittily deconstruct the robot's stereotypic performance of the gendered 'hostess'. The two pieces featured in the exhibition are *Canny* (2013), which features the Actroid inside a data centre, and *Pathetic Fallacy* (2014), which poignantly meditates on the ageing process through a dialogue between the Actroid and an elderly woman.

Knox's practice - plus other works in the exhibition by Dan Chen, Zackary Canepari & Drea Cooper, and Ekso Bionics - illustrates that relationships between humans and robots are becoming ever more complex. Engineers and artists alike are producing technological creations that resemble us, and at the same time, advances in social robotics and artificial intelligence are creating uncanny new dialogues between people and machines. *The Future and Arts* ponders how the increasing reach of lifelike robots and AI into our daily lives, might ultimately impact society.

Taken as a whole, *The Future and Arts* reveals just how porous the boundaries are between real and artificial, natural and synthetic, and even life and death. The show vividly illustrates the power of art to probe the edges of what is creatively and technologically possible, and what is socially and morally acceptable. Exhibitions like *The Future and the Arts* enable us to flee forward into possible futures, experiencing different scenarios before they happen. The grand plans, creative visions, provocative blueprints and plausible scenarios on show, encourage us to debate what reality we want to see emerge. As the science fiction writer, Warren Ellis has said, shows like *The Future and the Arts*, enable us to live - for a brief moment at least - in "future time."[xi]

"Reality as we know it is exploding with novelty every day. Not all of it's good. It's a strange and not entirely comfortable time to be alive. But I want you to feel the future as present in the room. I want you to understand that the invisible thing in the room is the felt presence of living in future time."
Warren Ellis[xii]

Endnotes

[i] Oron Catts & Ionat Zurr (2019), "Artists working with life (sciences) in contestable settings", Interdisciplinary Science Reviews, Volume 43, 2018, *Issue 1: Art and science II*, Pages 40-53, Published online: 08 Mar 2018: https://www.tandfonline.com/doi/abs/10.1080/03080188.2018.1418122

[ii] Marshall McLuhan (1964), *Understanding Media: The Extensions of Man*, McGraw-Hill, New York, 1964

[iii] Ibid

[iv] Walter Benjamin (1927-1940), *Arcades Project*, Belknap Press of Harvard UP, Cambridge, MA, USA, Page 63-64. Published online: https://archive.org/stream/BenjaminWalterTheArcadesProject/Benjamin_Walter_The_Arcades_Project_djvu.txt

[v] *HUMAN+ The Future of Our Species*, 20 May 2017 – 15 October 2017, ArtScience Museum, Singapore https://www.marinabaysands.com/museum/exhibition-archive/human-plus.html

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[vii] Leigh Margaret Wilcox (2015), *Semi-Living: Tissue Culture & Art Project's Challenge to New Museum Theory,* University of Wisconsin, Milwaukee, Page 18-19, Published Online, August 2015: https://pdfs.semanticscholar.org/d4bf/8bde9a886969302b306981753366ce3b05d9.pdf

[viii] Allison Guy (2013), *The 10th Anniversary of the World's First Lab-Grown Steak*, Next Nature, 11 October 2013, Published online: https://www.nextnature.net/2013/10/the-10th-anniversary-of-the-worlds-first-lab-grown-steak/

[ix] Oron Catts and Ionat Zurr (2004), "Ingestion / Disembodied Cuisine", Cabinet Journal, *Issue 16: The Sea*, Winter 2004–2005, Published online: http://www.cabinetmagazine.org/issues/16/catts_zurr.php

[x] Sherry Turkle (2018), *The Robotic Moment,* Encyclopædia Britannica, 25 May 2018. Published online: https://www.britannica.com/topic/The-Robotic-Moment-2118595

[xi] Warren Ellis (2012), "How To See The Future", *Improving Reality Conference* transcript, 7 September 2012. Published online: http://www.warrenellis.com/how-to-see-the-future/

[xii] Ibid