

Article

The Gold Mine: A Post-singularity Utopia

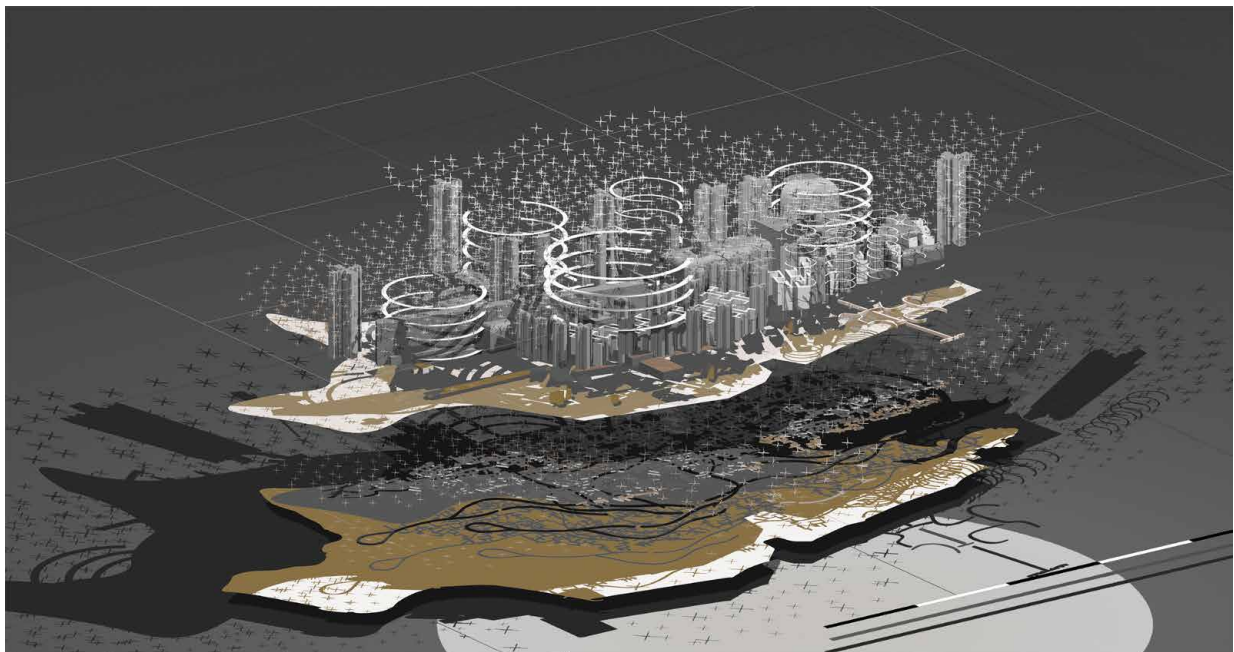
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Nic Clear, The Gold Mine, Composite Axonometric, 2014

The Gold Mine is an architectural design project that fuses Science Fiction (SF) narratives with elements of utopian architectural thought to propose a technologically advanced city of tomorrow. It is a speculative design project set in post-singularity future, located in the Thames Estuary on Canvey Island and nominally set in the year 2163¹. The project has been developed through a number of iterations; its evolution has been recorded through a series of exhibitions, publications and public

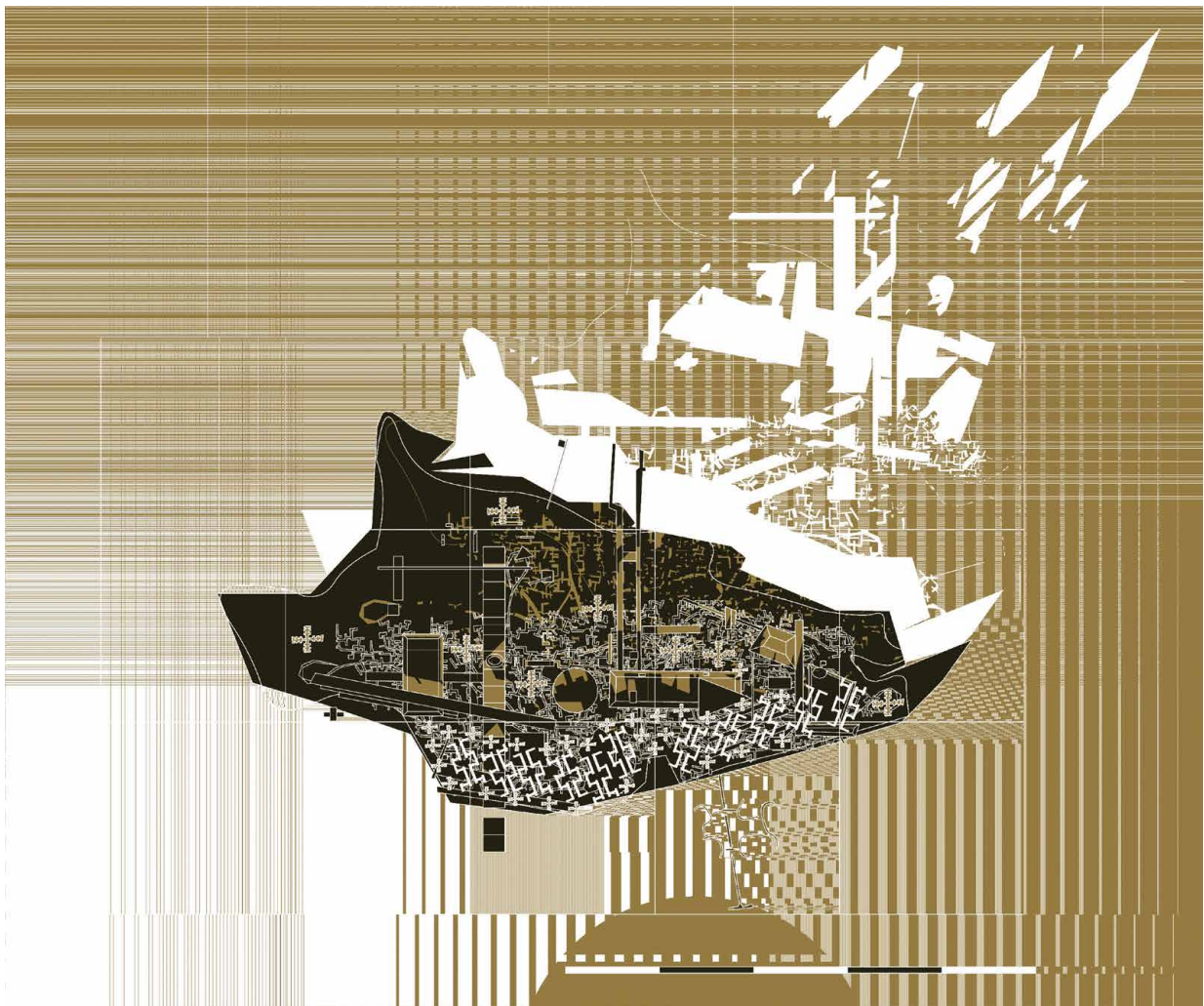
lectures. The central focus of the project is to use a piece of design research to imagine a utopian post-singularity architecture that consciously incorporates ideas taken from literary SF.

In the project, an important theoretical point of departure is the definition of SF developed by literary theorist Darko Suvin. In 'On the Poetics of the Science Fiction Genre' Suvin defines SF as a 'literature of cognitive estrangement' (Suvin 1972 p372) that contains within it an 'exclusive interest in a strange newness, a novum'

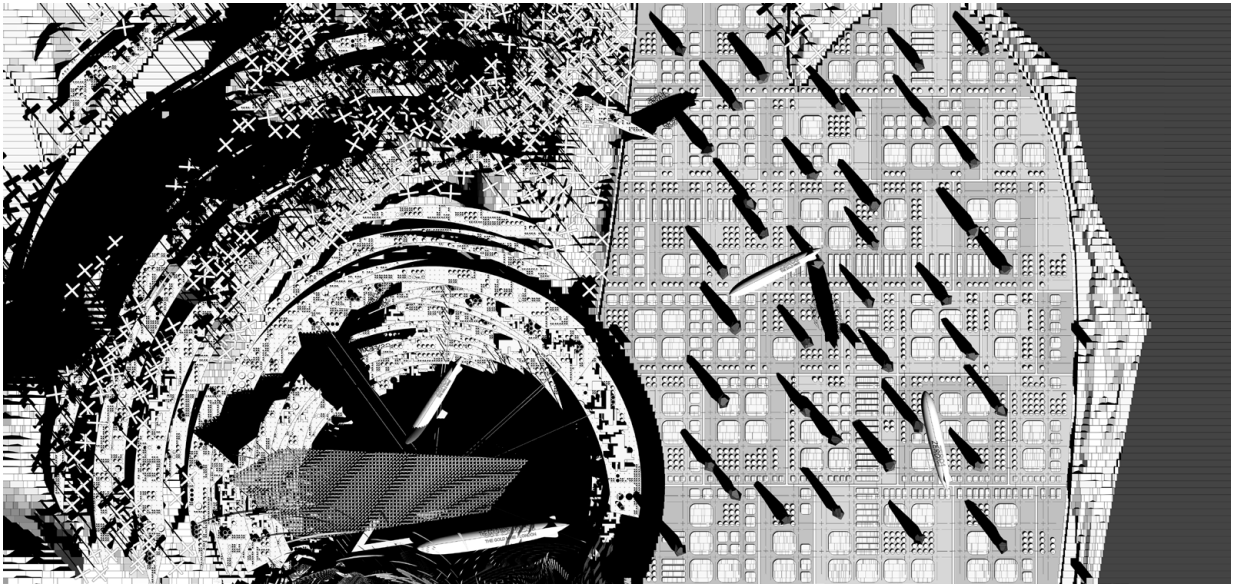
¹ - Two hundred years after the author's birth.

(Suvin 1972 p373) that he later extends with reference to it being 'validated by cognitive logic' (Suvin 1979 p79). This combination of 'estrangement' and 'newness' supported by the 'logic' of science and technology underpins the ideas developed in the project and fuses the innate qualities of architecture and SF to ask 'what-if' questions and speculate upon possible futures. Another important theoretical concept developed by Frederic Jameson in 'Archaeologies of the Future' (Jameson 2005), following Suvin, that the 'utopian'

should be considered as a 'socio-economic sub-genre of that broader literary form (SF)' (Jameson 2005 pxiv). Since for something to be considered utopian, it has 'estranged' itself from the society from which it originates, a feature that also implies that the utopian is always relative rather than absolute. If the utopian is a sub-set of SF then architectural utopias should also be considered to be a part of SF, something that is largely overlooked by theorists of both SF and architecture (see Clear 2014).



Nic Clear, The Gold Mine, Composite Masterplan, 2014



Nic Clear and Hyun Jun Park, The Chthonopolis, Partial Masterplan, 2017



Nic Clear and Hyun Jun Park, The Chthonopolis, Sectional Axonometric, 2017

The project extensively draws upon recent developments brought together under the generic term the Nano Bio Info Cogno, or NBIC. The term Nano Bio Info Cogno was coined to describe the development of technologies that operate at the nano-scale in material science, biotechnology, advanced electronics, computer science and the development of cognitive processes such as Artificial Intelligence. It was popularised in 2003 through the publication of a report, sponsored in part by the U.S. National Science Foundation, edited by Mihail Roco and William Sims Bainbridge (Roco and Bainbridge 2003) which identifies the many areas that will be affected by the NBIC technologies.

Despite the radical potential outlined in the various contributions, the overall tone of the report is politically conservative, and improvements in human performance are seen as largely quantitative rather than qualitative. While the report discusses significant changes to the economy, it seems largely centred on maintaining current models of 'market capitalism' as the major driver of our economic system. The possibility that these technologies could create a completely different type of economic and political future with greater levels of equality seems beyond the report's remit.

Wider discussions in the area of the emerging technologies often blur the boundaries between: actual science, possible science and completely speculative science. This can be seen in many popular science books where imagined futures are treated as an inevitability, as exemplified by publications such as K Eric Drexler's *Engines of Creation* (Drexler 1986 updated in 2007), Nicholas Negroponte's *'Being Digital'* (Negroponte 1995), Kevin Kelly's *'Out of Control'* (Kelly 1996), Ray Kurzweil's *'The Singularity is Near'* (Kurzweil 2005), Michio Kaku's *'Physics of the Future'* (2011). While Drexler, Kurzweil and Kaku are respected scientists, their books are all highly speculative and make claims that are well within the domain of SF. Indeed, some scientists are explicit about the use of speculative ideas to expound on scientific issues, Donna Haraway in her recent work *'Staying with the Trouble'* (Haraway 2016) looks at strategies from science fiction, biology and art practice to construct effective oppositional relationships to neo-liberal late capitalism to address climate change. Haraway has even gone as far as stating

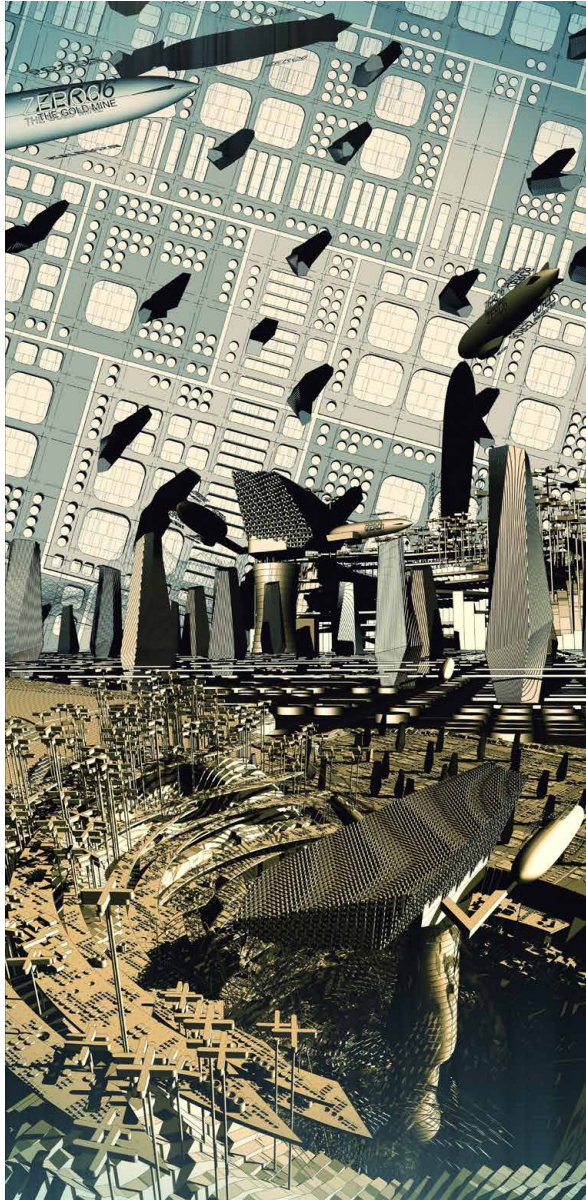
all 'science is SF' (Haraway 2016). Isabelle Stengers has recently advocated SF as a legitimate way of 'Reclaiming Imagination' in science (Stengers 2019).

The Technological Singularity

We are on the edge of change comparable to the rise of human life on Earth. The precise cause of this change is the imminent creation by technology of entities with greater than human intelligence. (Vinge 1993 p12)

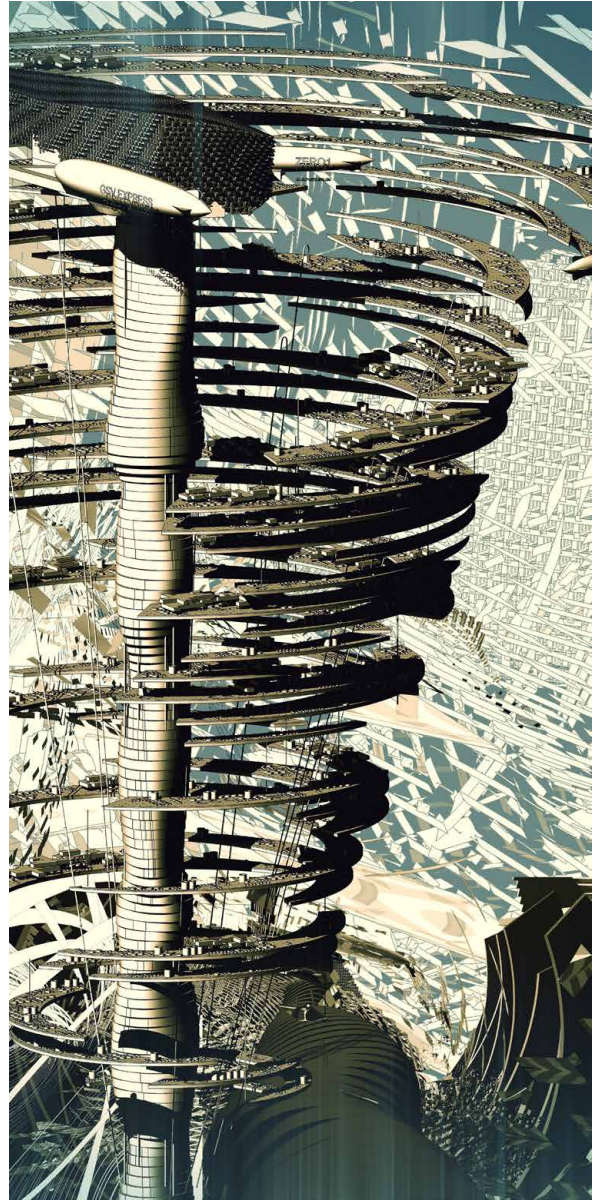
The concept of the technological singularity was first outlined by Vernor Vinge in 1993, it is an issue that is highly contested within contemporary science. There are a number of competing definitions, but the central idea of the technological singularity is the point at which machine intelligence develops the ability to self-replicate autonomously and begins to produce artificial super-intelligences. The term was popularised by Ray Kurzweil in his book *'The Singularity is Near: When Humans Transcend Biology'* (Kurzweil 2005); Kurzweil believes that by 2045 the point at which machine intelligence surpasses human intelligence will have been reached, and a new era of technological advance will be ushered in.

This idea of the singularity is not without its critics who see that the type of artificial intelligences imagined by Kurzweil are a distant possibility and that the technology itself would be self-limiting and never capable of human-like intelligence, let alone super-intelligence, or consciousness. Murray Shanahan (Shanahan 2015) sees the development of these technologies as flawed as he believes a machine will never have the computing power to match human consciousness. However, the issue of consciousness may not even be relevant to AI as there are people like the philosopher Daniel Dennett who thinks human consciousness is explainable as a necessary evolutionary trick (Dennett 2017) and warns against anthropomorphising machine intelligence. Also, the claim that machine intelligence would simply emulate human brain functions is by no means inevitable; the possibility of other forms of machine intelligence is also equally feasible (DeLanda 1991).



Nic Clear and Hyun Jun Park, *The Chthonopolis*, Post-production Chronogram 01, 2020

Whether we accept the type of singularity described by Kurzweil, Steven Shaviro describes Kurzweil's work 'classic hard SF (Shaviro 2009), and if we leave aside its claim to be making 'reasonably accurate predictions', there is still the probability that Artificial Intelligences will become so pervasive and relatively powerful that they will in effect demonstrate 'singularity-like' behaviour, what Kevin Kelly describes as a 'soft singularity' (Kelly 2016).



Nic Clear and Hyun Jun Park, *The Chthonopolis*, Post-production Chronogram 02, 2020

How a society deals with the implications of these advances, in ways that might form a radically progressive model of futurity, is encapsulated on the cover of Srnicek and William's 'Inventing the Future', '*DEMAND FULL AUTOMATION, DEMAND UNIVERSAL BASIC*

INCOME, DEMAND THE FUTURE' (Srnicek and William 2017)² and is mapped out in their speculative programme for a post-capitalist world.

² - Original capitalisation

But the ultimate trajectory of universal emancipation is towards overcoming physical, biological, political and economic constraints. This ambition to undo constraints is one that, taken to its limits, leads inexorably towards grand and speculative frontiers. (Srnicek and Williams 2017 p178)

The Gold Mine fuses concepts from a scientific and political perspective with inspiration from a variety of SF literary works such as Charles Stross's 'Accelerando' (Stross 2005), Hannu Rajaniemi's 'Jean le Flambeur Trilogy' (Rajaniemi 2010 – 2014) and Ken MacLeod's 'Corporation Wars Trilogy' (MacLeod 2016-17); but the single most important reference is Iain M Banks's Culture novels (Banks 1987 – 2012) and the 'Notes on the Culture' (Banks 1994) in which the AI Minds interact productively with the human agents.

The model of a post-singularity world imagined in the Gold Mine is a hybrid system where machine intelligence is symbiotic with human agents and environmental inputs, to create a dynamic sentient entity. The idea of a single intelligence running everything is replaced with a form of a distributed network and rather than being a demo-cracy, the Gold Mine is a collabo-cracy³ where the whole of the settlement acts like an integrated horizontal system whose principle goal is collaboration rather than a competitive hierarchical basis premised on the will of the largest group. One element that is important is that the occupants of the city through their actions introduce an element of randomness that makes the system continually non-linear, this is predicated in areas of contemporary gaming, such as Games with A Purpose (GWAP's) (Von Ahn, Dabbish 2008).

The Utopian Tradition

Throughout the development of the Gold Mine project, a number of explicit precedents and tropes taken from both the architectural and SF utopian traditions which were consciously adopted in the conception, development and realisation of the project.

The Island – The decision to represent the project as an island community cut-off from the rest of the world is appropriated from Thomas More's original narrative. The isolated utopia has been both a theoretical and

practical model throughout the history of utopian discourse, especially in the utopian colonisations of the 'new world'⁴, the antipodes and the global South. As Darko Suvin notes though geographically disconnected, the role of the Island is to enable a critical engagement with the reader's own locality.

Finally, though topographically closed, utopias are presented by a dramatic strategy which counts on the surprise effects of its presentations upon the reader: significant utopian writings are in permanent dialogue with the reader, they are open-ended. (Suvin 1979 p115)

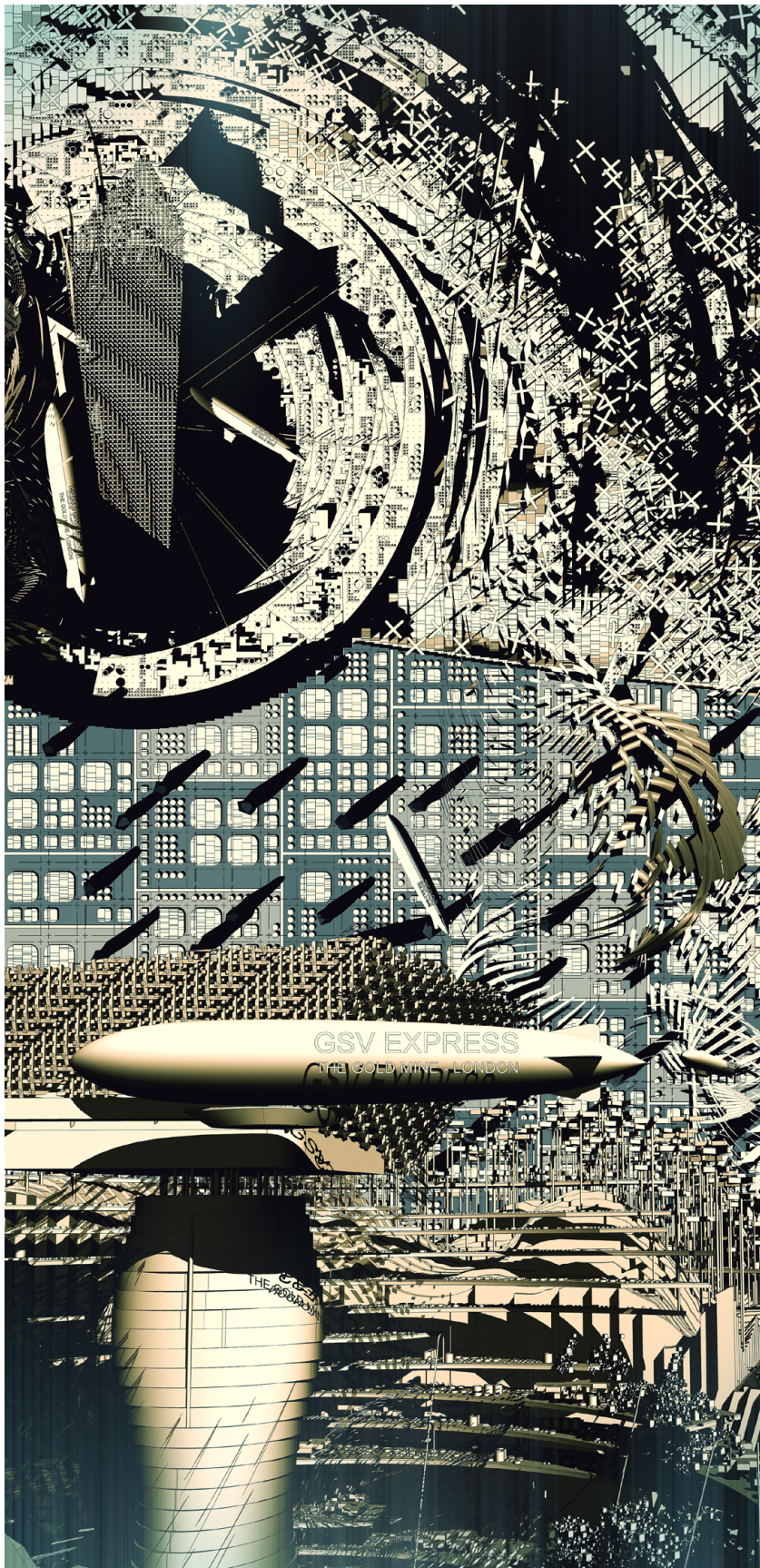
A Technological Utopia – Many architectural Utopias have achieved their objectives through the adoption of advanced technology that could be taken directly from the pages of HG Wells or Jules Verne, such as Tony Garnier's 'Cité Industrielle', Le Corbusier's 'Ville Contemporaine', or, the avant-garde utopian ideas of the Italian Futurists and the Russian Constructivists as well as later developments particularly Constant's New Babylon and Archigram (Clear 2014). And Edward Bellamy's 'Looking Backwards, 2000 - 1887' (Bellamy 1888) outlines a fictional future dominated by speculative technological transformations that influenced a range of real-world approaches such as Ebenezer Howard's 'Garden City' (Howard 1902) and Frank Lloyd Wright's 'Broadacre City' (Wright 1932). The principle exception to this tendency is William Morris's, 'News from Nowhere' (Morris 1890) which imagines society returning to a pre-industrial idyll, though Morris's text was written in direct opposition to Bellamy's and is therefore still influenced by its thesis.

Collectivist self-contained community – the autonomous community has been a mainstay of social utopias since Henry de Saint-Simon and developed through Charles Fourier's 'Phalanstère', Jean-Baptiste André Godin 'Le Familistère' and Robert Owen 'New Harmony'.

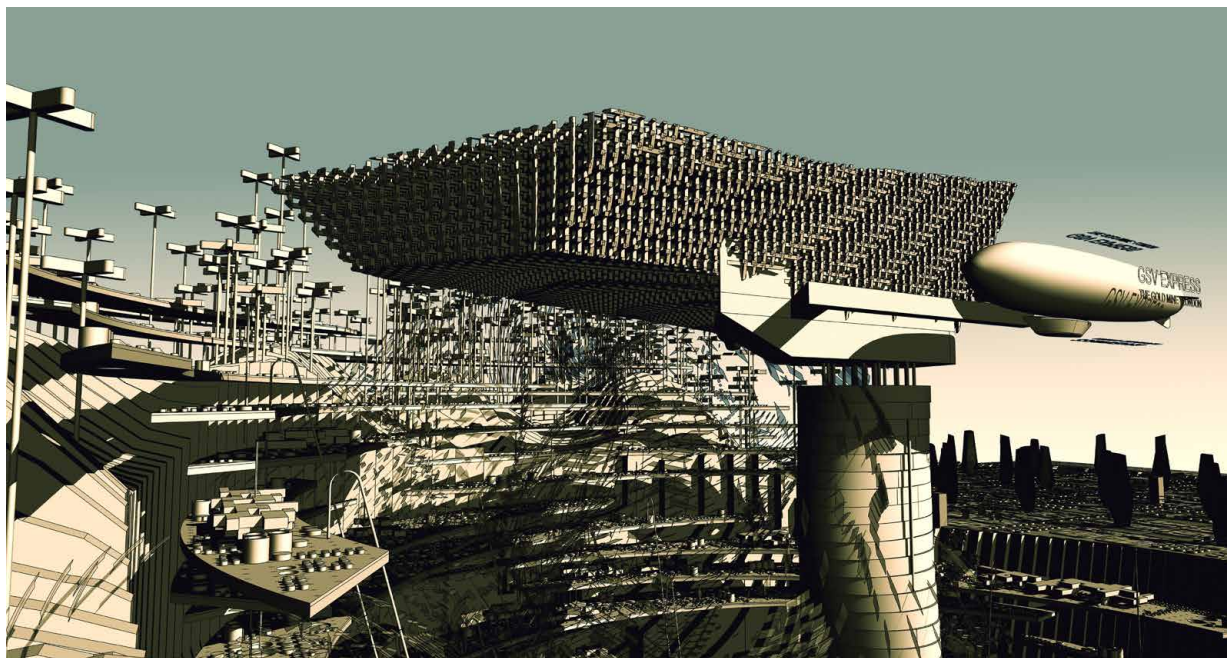
A particularly important reference to the Gold Mine was the community outlined by the behavioural psychologist BF Skinner in his novel 'Walden Two' (Skinner 1948), heralded by Jameson as a 'neglected and underestimated modern utopia' (Jameson 2005 p50).

3 - Collabocracy was a term that the author developed during his Professorship at the Academy of Fine Art in Vienna 2016.

4 - In this respect America might consider itself as one huge utopian experiment.



Nic Clear and Hyun Jun Park, The
Chthonopolis, Post-production
Chronogram 03, 2020



Nic Clear and Hyun Jun Park, The Chthonopolis, Visitors Tower, 2020

The Company town – many of the utopian settlements of the 19th century were set-up under the rubric of philanthropic paternalism where companies organised decent living accommodation and social amenities for their workforce, UK towns such Bourneville, Port Sunlight and Saltaire were seen as models for decent worker living. The Gold Mine is imagined to be run by a fictional ‘open source’ games company that uses a model of gaming based upon ‘Games with A Purpose’ or GWAPS. In keeping with the ethos of the community, the company is run on a cooperative basis with all citizens of the Gold Mine acting as stakeholders within the company and not run for profit but for the betterment of its citizens.

Towards a Post-Singularity Architecture

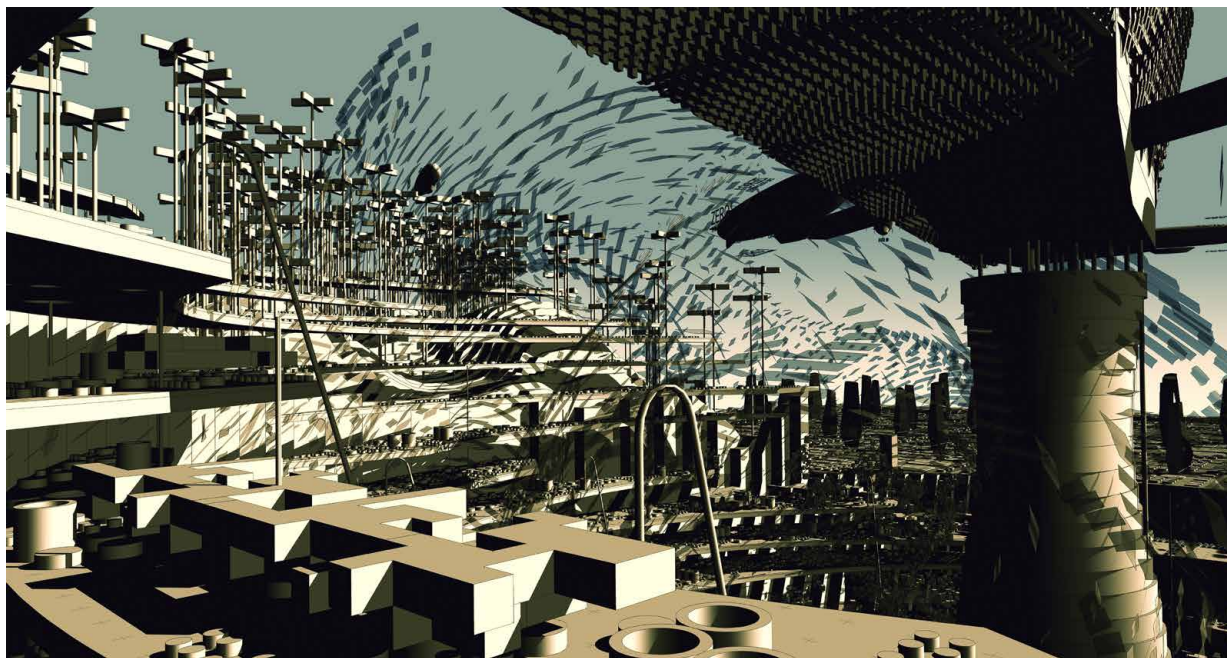
Canvey is not a separate island as shown on the plans, and while the project assumes that global sea levels have risen significantly by the time of the project, the representation of the plan is a reference to the iconic image for More’s Utopian island that was created by Abraham Ortelius in 1595.

Canvey’s topography has been fashioned by technological manipulation for centuries. It was first made habitable in the 17th century by draining carried out by Dutch engineers (Yearsley 2000), and in 1953

after it was the subject of serious flooding resulting in the deaths of 58 people, large scale coastal defences had to be built which are still in place. One of Canvey’s main industries during the 20th century was the petrochemical industry, the other being tourism, and in 1959 Canvey became the UK’s first liquified petroleum gas terminal resulting in small areas of the island being subjected to artificial ‘permafrost’ (Hansard 1978).

Although, the location of Canvey Island has a number of personal resonances, this part of Essex has a history of utopian enclaves, mostly drawn from temperance societies or workers cooperatives moving out from London to escape the evils of the city (Meades 2013). The name the ‘Gold Mine’ refers to a club that was based on Canvey in the late 1970’s famed for its eclectic mix of music and its role in punk, New Romantics and jazz funk movements.

The design of the Gold Mine started by sampling plans from a variety of ‘utopian’ projects that had featured in the author’s writing, the principle precedents that are still recognisable are Le Corbusier’s ‘Ville Contemporaine’ and the ‘Obus plan for Algiers’, Constant Nieuwenhuys’s ‘New Babylon’ and his urban derive proposals (which reappear in the Chthonopolis section) alongside elements of OMA’s plan for ‘La Villette’, though not itself a utopian project it is perhaps the most



Nic Clear and Hyun Jun Park, The Chthonopolis, Ludic Habitation Sector, 2020

influential master-planning project in operation today and derived from constructivist concepts. The sampled plans were laid over an existing map of Canvey and manipulated in 3D to create a series of volumetric forms and to develop an infra-structural layering. Additional forms of technological infra-structure were layered onto the drawings, including the swarms of self-assembling nanobots signified by three-dimensional crosses. This was rendered out as an isometric drawing that was used as the key guide for the model, and a version of the plan was blown up to facilitate the model's construction.

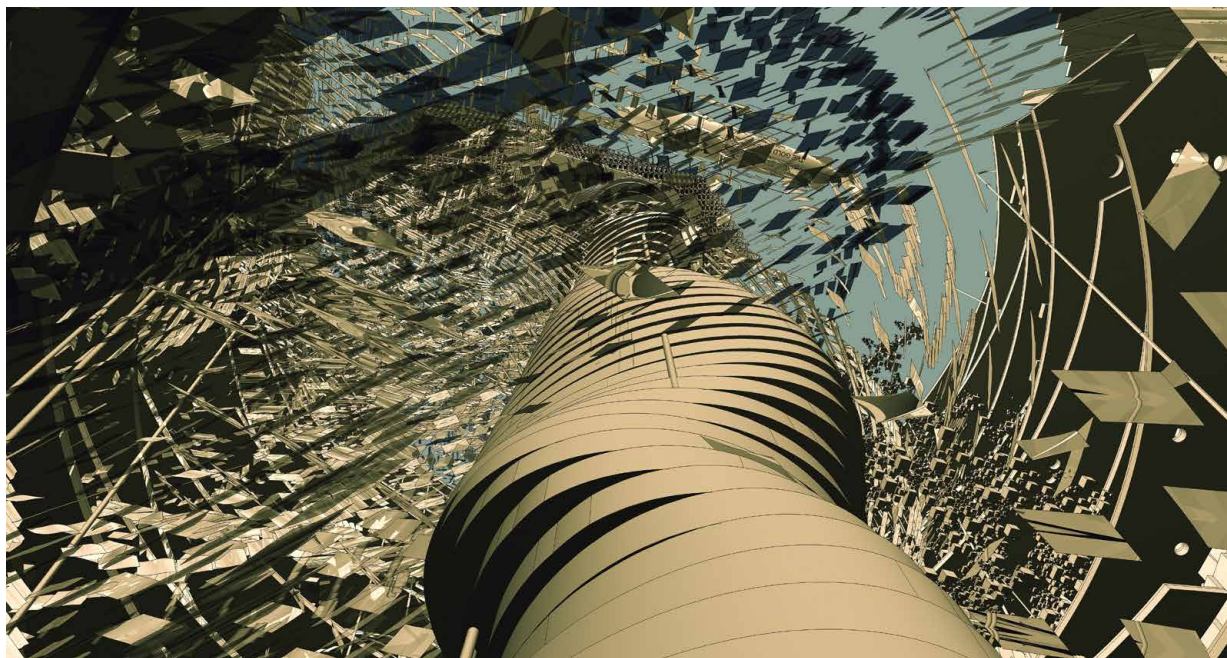
As has been already mentioned thematically, the biggest inspiration for the project comes from Iain M Banks' *Culture* and Constant's *New Babylon*, the wider area designated in the project, the 'GSV (Greater Southern Village)', is derived from an acronym in the *Culture* which refers to the type of craft in the *Culture* space fleet, the 'General Service Vehicle'. The scale of the two GSV's is approximately the same overall size at 50-km long. Canvey would represent one sector of the GSV, a zone dedicated to leisure and ludic activities. This is read through the spatial organisation of Constant's *New Babylon* project⁵. A significant influence informing the 'ludic' programme was the work Johan Huizinga

whose 'Homo Ludens' (Huizinga 1955) inspired much of Constant's thinking, another reference comes from BF Skinner's utopian novel 'Walden Two' which sets out how behavioural modifiers might be used to maximise the potential of all the systems inhabitants.

Many of the ideas for the technical resolution of the Gold Mine were taken from a variety of SF literature, Iain M Banks as has already been mentioned but also the work of Alastair Reynolds especially 'Chasm City' (Reynolds 2001). Some of the technical concepts are quite fanciful, the use of nano-engineered sodium chloride to replace the hyper-diamond constructions favoured by Banks also reflects the fact that this part of Essex is famed for its salt production (Malden is only a few miles away). However, the idea of incorporating carbon-nanotubes is less speculative though the current development of this material is a long way from producing viable engineering solutions of the scale proposed.

A key mantra for the project is 'Nothing is wasted', and this not only refers to physical resources but to human resources as well. In terms of ethical use of materials, the ability to operate at the nano-scale will allow all materials to be re-purposed, and through individually customised computing interfaces all members of society are encouraged to reach their full-potential. Indeed, one

5 - For an analysis of the relationship between Banks and Constant see Clear 2013b.



Nic Clear and Hyun Jun Park, The Chthonopolis, Ludic Habitation Sector - Visitors Tower, View from Caldera, 2020

of the motivations for the project is to reflect upon how our current system fails such as the large section of the population.

Important issues around the use of materials were identified particularly the amount of waste of resources that currently dominates human activity. Energy production was also touched upon, and an integrated system where renewable sources, tidal, solar, wind are combined with more speculative approaches such as fission/fusion nuclear reactors (Gerstner 2009).

Located in an estuary flood plain Canvey is entirely flat and the new plan sought to create a new artificial landscape with hills to North and a large caldera in the centre of the island. The new topography is created through a process akin to deposition printing, the earth removed from the subterranean excavations by robotic tunnelling drones is re-used to modulate the existing landscape. Below the island in the excavated spaces, an extensive labyrinth is constructed where ludic activities take place, physical spaces created to solve abstract problems.

The second phase of the Gold Mine project allowed the opportunity to focus on the caldera section of the

original model. Drawing physical inspiration from the Mir diamond mine in Siberia, and formal inspiration the artist Sara Sze's 'The Art of Losing 02' (2004) and the video game 'Minecraft' (Clear 2017). The walls of the 1km deep crater are a series of banked terraces on to which the accommodation is placed that leads into the labyrinths.

At the centre of the caldera is a tower that runs the full height of the crater and is topped by a structure where visitors arrive, travel to and from the city is via airship, the form of this structure echoes El Lissitzky's 'Wolkenbugel' (Iron Clouds). The process of arrival, the descent into the caldera and the exploration of the labyrinths is mapped out in the 'Chthonopolis' film (Clear + Park 2018).

The Southern shore of the island in the Chthonopolis models is populated with high-rise blocks part of a vast de-salination process that harvests the salt to be used as part of the building process, and the water is distributed throughout the GSV.

The function of the city and its labyrinths is to address the supposed antagonism between technology and human activity by conceiving the city as a vast non-linear

(next page) Nic Clear and Hyun jun Park, The Gold Mind, Ludic Labyrinth, 2014



human computational network, dedicated to solving complex computational problems by utilising the infinite operations of countless individuals, providing random instances that create a myriad of possibilities. The project in its projection of a non-hierarchical social organisation, that values all resources material and human and is geared towards all aspects of society flourishing through the creative activities, is also a critique of a society that is openly divisive and seeks to maintain those divisions. The Gold Mine provocatively mixes concepts from both the architectural and SF utopian traditions; it extrapolates ideas from existing science and technology and proposes a post-singularity world as a possible progressive reality. In doing so, it situates architectural design within the Suvinian tradition of SF and shows that architecture and SF are not antithetical to one another. Indeed, one of the principle ambitions of the project is to demonstrate that architectural ideas can fall directly within the world of SF, and given the lack of engagement toward each other from both sides it attempts to open a debate up and encourage both sides to acknowledge their shared interests in questions of what the future will look like.

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