

Dreaming The Theory.

Selected writing by Rob La Frenais 2014-17

Manifesto For A Republic of the Moon.

Wherever they are in the world, when humans and animals look up, they see the silvery disc of the moon, in one phase or another. It's nearly five decades since humans walked on the moon and we are surrounded by satellites and machines heading for Mars and other planets. But the nearest humans can get into space is to perch on the International Space Station.

Sooner or later, we are going back to the moon, whether to mine it, to rehearse for a Mars mission or to just live there. But how will human activity there reflect what has happened on Earth since the last moon mission, to reflect the diversity and political and social changes that have happened since? Can artists imagine what it would be like to live on the moon?

Artists are already taking part in many scientific endeavours, becoming involved in emerging fields such as synthetic biology, nanotechnology, ecological remediation and enthusiastically participating in citizen science. There are already artists in Antarctica. It should be inevitable that artists will sooner or later accompany the next visit by humans to the moon.

But why wait? Artists are already imagining how it would be to live on the moon. In a provocative pre-emption of the future a group of artists have already declared in this exhibition a Republic of the Moon, here on Earth, with

diverse objectives. They range from Liliane Lijn's desire to project the word 'she' on the moon to Agnes Meyer-Brandis breeding and imprinting a new type of Moon Geese. Moon Vehicle activates the reactions of schoolkids to India's first lunar mission and Russian Leonid Tishkov carries his own private, personal moon around with him.

The history of an autonomous vision of the moon starts well back before the moon landings, though.

In 1966, three years before the Apollo missions made it to the surface of the Moon (Barry) Miles and John Hopkins, (Hoppy- a former atomic scientist who was later to become the UK's video pioneer) went on the Aldermaston anti-nuclear weapons march selling an 'anti-newsletter' called THE Global moon-edition Long Hair TIMES (the prototype for the famous International Times). In naming it the moon edition, between the Russian flight of Yuri Gagarin in 1961 and the moon landing in 1969, they were mocking the space race but also introducing the art of appropriation.

In 1999, 20 years after a man, Neil Armstrong walked on the moon, a woman, punk-influenced artist Aleksandra Mir, working with the public art agency CASCO, hired a lot of heavy equipment to turn the dunes near the entry of the North Sea Canal at Bewwerwijk, Holland into a moonscape. Echoing JFK's pledge to put a man on the Moon before the end of the decade, she declared her intention to be the first woman on the Moon before the end of the millennium. After she had triumphantly ascended the highest dune with an American flag and wearing a similar (sponsored) Hasselblad camera to that of Armstrong she declared herself to be the First Woman on

the Moon. The audience followed her up in to the dune with the first black person, the first German, and other popularly manifested version of 'first'.

But lets go back a bit further, to the first-ever science fiction novel. In around 1607, the English bishop Francis Godwin wrote the 'Man in the Moone', in which the hero, Gonzales, was towed to the Moon by a flock of geese. Science fiction writers and the popular imaginary, to this day onwards, starting with Godwin, work with the tools in hand. For Godwin it was geese. For later writers it could be flying ships in full sail, flying discs or terraformed travelling planets. But about 404 years after Godwin, it is truth and not fiction that German artist Agnes Meyer-Brandis hand-reared 12 moon-geese and is training them to become lunar astronauts on a remote farm in Italy.

Back to the Republic of the Moon. Who owns the moon? In 1967, 2 years before the moon landings, the UN drafted and approved 'The Treaty on Principles Governing the Activities of States in the exploration and use of Outer Space, including the Moon and other Celestial bodies,' commonly known as the Outer Space treaty. This has been ratified by all space-faring nations and many others and states that 'outer space is not subject to national appropriation by claim of sovereignty, by means of use or occupation or by any other means and that the Moon and other celestial bodies shall be used exclusively for peaceful purposes,' and other similar clauses.

2 years later the US planted a flag on the Moon, but technically the 1967 treaty still holds. Of course there are many loopholes and exceptions, caused principally by the failure to fully ratify the more specific UN 'Agreement

Governing the Activities of States on the Moon and other Celestial Bodies' in 1979 and ratified by only 14 (non-space-faring) nations in 1984.

This has led people like Dennis Hope of the Galactic Federation and others similar to justify selling fake certificates claiming areas of land on the Moon, based on the premise that the premise that the Outer Space Treaty only covers the activity of states, not individuals. Further complications come from the existing Russian spacecraft still sitting on the moon, for example Luna 21 and the extraordinarily designed tank-like rover Lunakohd 2, which in 1993 was sold at Sothebys by a Russian association for \$68,500 to the internet entrepreneur Richard Garriot who now claims to own the ground underneath the lander and rover, and by extension, the whole moon.

If, as expected, the Chinese space agency become the first nation state to return to the moon, (although the fast-expanding free enterprise space sector could give them a run for their money) the finders-keepers principle will probably apply, as they showed no hesitation in tearing up the Outer Space Treaty in 2007 when they smashed an aged weather satellite, Fengyun-1C with a Don Feng-21 rocket in a rehearsal for a war in space, filling near space with thousands of pieces of dangerous debris. We are therefore talking about a political, disputed territory, one ripe for artistic intervention.

First, it is worth considering the history of artistic micronations and how they might affect the declaration of an artistic Republic of the Moon. In 1984, a suitable year given their appropriation of totalitarian imagery, the foundation of the NSK (Neue Slowenische Kunst) took

place in Slovenia, then part of former Yugoslavia. Since 1991 they have fully declared themselves a state and issue convincingly real NSK passports to this day. NSK State take part in summits of micronations, along with artistic and territorial micronations such as Ladonia, the Principality of Sealand and various others.

Their profile today are increasingly known via their Internet TV station, NSK State TV, primarily NSK State News, which is transmitted in a style cleverly merging former communist country news broadcasts and 50's American public information movies. Laibach, their equally well-known rock group, or perhaps national orchestra, has created an anthem for the NSK State TV, which is played at the start of each broadcast.

NSK are relevant to the Republic of the Moon for two reasons, firstly in the activities of Dragan Zhivadinov's Noordung Biomechanical Zero Gravity Theater and secondly in the projects of Marko Peljhan of Projekt Atol and Makrolab. Dragan Zhivadinov was the founder of the Sisters of Scipio Nascia, essentially the National Theatre of the NSK State, and like Laibach and Irwin, the painters group, was internationally renowned. Zhivadinov, inspired by the Slovenian space pioneer Hermann Potocnik Noordung, has a vision of a theatre of dead astronauts in space, starting with the artist himself.

Zhivadinov, working with Peljhan, opened the way to what was essentially an alternative artists space programme in Star City, Moscow, later organised by The Arts Catalyst with various partners including Leonardo (OLATS) and V2 in Rotterdam during which over 50 artists and groups experienced microgravity for the first time. Groups such as

the Association of Autonomous Astronauts had been agitating for some time about trying to free up the space programme from space bureaucrats and the massive infrastructure that surrounds astronaut training, now for a brief moment in the early 2000's this became a reality which culminated in the parabolic flight campaign of MIR, named after the de-orbited Russian space station but also an acronym or Microgravity Interdisciplinary Research. Flight director was Marko Peljhan, whose Makrolab project was to some extent a mini-micronation.

Peljhan has gone on to develop three directions relevant to this Manifesto. He is working with a real but essentially unrecognised nation, the Inuit in Nunavut in the Canadian Arctic in his and Matthew Beiderman's Arctic Perspective project (The Arts Catalyst is also a partner in this). He has helped to set up the ESA- recognised Slovenian Centre of Excellence in Space Research, a prototype for a Slovenian Space Agency, and a futuristic new center in Vitanje, home town of Slovenia Space pioneer Noordung, The Cultural Center of European Space Technologies.

One can also look at existing utopian or 'intentional' communities such as Denmark's Christiania, India's Auroville or Arizona's Arcosanti to see a vision of how an isolated community on the Moon might be able to develop and how human factors might be successfully studied here on earth to consider the governance of a Republic of the Moon.

For now, the Republic of the Moon exists in the mind – indeed, one of the primary sources for any Manifesto must come from the artist's individual imagination. Every imaginative artist comes with built-in world-building

equipment. This is a kind of controlled solipsism – the notion that one is at the centre stage of a lifelong drama or movie that is being put on by actors for ones’s own benefit. Out of hand this can be dangerous and unbearable for others, but some artists can utilise and benefit from this effect.

For example when artists Sue Corke and Hagen Bestwieser found themselves on a residency together in Northern Norway, they went on a residency to some remote tundra which resembled a moonscape. ‘Oh my god’ they thought simultaneously. ‘We colonised the Moon!’ Thus was born the name of their artists group, which combined Bestweiser’s crazy physics experiments, such as trying to light a fire with starlight, with Corke’s sense of play and appreciation of unusual materials.

So, like everything in this messy universe, if there is a Republic of the Moon, or if artists or moon-geese colonise the Moon, it will be done out of serendipity, or simply by accident. Towards a Republic of the Moon!

This essay was commissioned by The Arts Catalyst for the catalogue/manifesto for its exhibition Republic of the Moon.

Dreaming The Theory Part 1

Not many people could claim they were exposed to art and science collaborations at an early age but I actually could. As a 17-year-old schoolboy I found myself in 1968, wandering around, fascinated, at the ICA’s Cybernetic Serendipity, curated by Jasia Reichardt. I learnt about the first word in the title, cybernetics, for the first time and was

prompted to immediately start reading Marshall McLuhan and Buckminster Fuller, already primed as I was as a young science fiction addict and a voracious reader of J.G. Ballard, (then exclusively a sci-fi author) Kurt Vonnegut, Brian Aldiss and Robert Sheckley. Cybernetic Serendipity was the UK manifestation of many of the new worldwide encounters between science, engineering and art happening in the late 60's, along with Billy Cluver and the EAT manifestations in the US. It was not long before this that C.P. Snow wrote the influential 'Two Cultures' lamenting the new separation (mainly at academic level) between science and the arts.

I was to meet several of the artists and scientists featured in the exhibition later in life, including Gordon Pask, Bruce Lacey, Roy Ascott and Jasia Reichardt herself. But the person who was to influence me from beyond the grave, who I never met, was the legendary former rocket scientist and kinetic artist Frank Malina, father of the polymath astronomer and major art-science influencer Roger Malina.

Malina gave a lecture at Cybernetic Serendipity that I was unfortunately not to attend titled 'Reflections on the Differences between Science and Art'. I can't find a transcript of this at the time of writing, but this dichotomy continues to plague commentators on the subject, including his son Roger Malina who expresses his 'horror of a proposed syncretism of art and science in some mish-mash of a third culture.' He goes on to say: "I don't believe that inter-disciplinarity is a discipline. I agree that there are very good intrinsic reasons why the arts and sciences have diverged, independent of cultural or organizational imperatives. Artists and scientists may both be trying to make sense and meaning out of the world we

live in but their underlying epistemologies are distinct.” Some of the example I will give in this essay challenge this viewpoint, others find agreement with it. Overall, I will argue, like Malina against the hybridity model of art and science.

The main issue is the raw material which scientists work with, data. Although the case could be made for unconscious data, such as fractals, or poetic data, the fact is that scientists have to collect enormous amounts of data to prove theories. Although there can be some synergy developing out of collaborations between artists and scientists, most of the involved parties argue against a hybrid form like ‘sci-art’ - a term now abandoned by its inventors, The Wellcome Trust or ‘artsci’ argued by Prof. Arthur Miller in his 2014 summary ‘Colliding Worlds – How Cutting Edge Science is Redefining Contemporary Art’. I will address some of Miller’s arguments later on here.

It was at one of Malina the younger’s science-art gatherings, the Leonardo Space-art workshop, taking place in Frank Malina’s former studio, an evocative environment dominated by Malina’s senior’s flickering kinetic paintings and mobile and 50’s intellectual clutter, that I heard the choreographer and dancer Kitsou Dubois speak for the first time. Her work would come to embody what I could call the ‘utilisation model’ of art and science, in that she argued that a dancer’s practice could actively assist astronaut training and a physiological approach to living in space.

It was to lead me to propose on of the first research projects to the Arts Catalyst, who then called themselves

the 'Art-Science Agency'. Dubois had pioneered the first art in zero gravity, travelling in the French Space Agency's (CNES) Caravelle between 1991-94. She wanted to carry on working in these environments, so we started a series of meetings with scientists at Imperial College London's biodynamics group, who were excited about being able to experiment with both 'normal' and 'trained' subjects.

An experiment was designed, with equal participation between artists and engineers, refereed by us, but it was hard to keep the artistic aspect in. The European Space Agency, whose microgravity plane we were now trying to get accepted for, insisted everything must be tied down, peer-reviewed experiments. No dance allowed.

This project was funded by the Wellcome Trust's former 'Sci-Art' fund, now simply called 'Arts Projects', although it still encourages art and science collaborations. At the end of the project a scientific paper was published by the Imperial College scientists: entitled: 'Human corticospinal excitability in microgravity and hypergravity during parabolic flight' and was published in *Aviation, Space and Environmental Medicine* in 2004. Here is an edited extract from the scientific paper. It is interesting the way this is presented as it is possibly one of the first examples of an art project being integrated into published research in this way:

“The team set out to investigate how the nervous system controls the subtle process of adjusting posture. And whether people who are very good at moving their bodies, like dancers, have a better-developed control system. In the first investigation, led by neuroscientist Dr Nick Davey, the team wished to find out how it is that the back muscles

contract to counter arm movements on the opposite side. Is this controlled by the brain in a coordinated way – does the brain switch on the pathways to the left back at the same time as those to the right arm? Or is it a reflex response? The team measured how active different muscles were at different times by recording electricity or electromyography (EMG) produced by the muscles, and how active the pathway from the brain was, for which transcranial magnetic stimulation (TMS) was used. With TMS, magnetic pulses stimulate those nerves in the brain that project to back muscles, enabling the team to investigate how the responses in the back muscles to TMS change when the arm is extended.

Gravity's action on the body brings into play balance organs in the ear as well as touch and stretch sensitive organs in the skin, joints and muscles, which can confuse the results, so the team wished to perform the experiment in zero gravity. They found, both on the ground and in zero gravity, that the back muscles were turned on when the arm was extended and that the pathways from the voluntary control areas of the brain were more active when this happened.

Another interesting result was the response of the body's muscle to removing gravity. Rather than relaxing in weightlessness, as one might expect, the muscles of the back in fact became more active regardless of the position of the opposite arm. In other words the spine became more inflexible in zero gravity rather than the more flexible state it is in on the ground. The team thinks that this process enables the body to orientate itself more easily when its gravitational point of reference is removed.”

It was still something of a struggle to get the artistic contributors, Kitsou Dubois and Nicola Triscott, listed as full collaborators.

At the same time, we had started working with the ‘nuclear artist’ James Acord. In fact Acord became the subject of my first meeting with the former scientist Nicola Triscott, founder of The Arts Catalyst 3 years earlier. At our first meeting in 1997 Nicola Triscott handed me a copy of the *New Scientist*. It contained an article about the world’s first (and only) nuclear sculptor, James Acord. There and then we decided to find this guy, somehow, and bring him to Europe. This was the first time we had met but this meeting led to the first of a set of challenges that we, at the Arts Catalyst were to face over the next couple of decades.

We already had in common the late Helen Chadwick, in terms of difficult artists projects. I had worked with her 10 years previously to create a ‘miracle’ in a small evangelical chapel in Clerkenwell, the now-famous ‘Blood Hyphen’ in which “climbing the stairs of a small chapel to the pulpit, you poke your head through a false ceiling. You find yourself in a dark space in which a single red laser cuts through smoke to strike a large transparency (images of cells taken from a cervical smear test). Connotations of God and the body, dissection and disease, physical and spiritual introversion, clash to produce a powerful atmosphere that refuses to be pinned down.” (Camelia Gupta, 2004, describing the reconstruction of this work by Whitechapel Gallery). She was a difficult and demanding artist to work with, and Nicola had just fought to get access to embryo-selection procedures for the Arts Catalyst’s *Body Visual* exhibition. This has been well documented in

the essay 'Unnatural Selection' by Louisa Buck. So we knew difficult.

This combination of circumstances led us to be driving down a highway to James Acord's studio on the perimeter of a reactor in Hanford, the US's Nuclear City, an all-American version of the Soviet Union's 'closed' research cities. We had got there via a series of telephone calls (internet searches were not quite all-ubiquitous in '97) false trails, then finally a blind meeting in a bar in Seattle with one of Acord's network of fixers (and protectors). Jim Acord gave us a rapid intro to America's nuclear dark side, tours of 'nuclear' churches, bars, and supermarkets where you were spotted as an outsider if you didn't have a big swinging nuclear badge. Acord regaled us with tales of surveillance, nuclear accident survivors and missing cats, but more fundamentally showed us that you could engage with the nuclear world and have a debate between believers in a nuclear future and arty, traditionally anti-nuclear types.

By meeting Acord It felt like we had crashed through the logjam of the 'two cultures' in one go. This was to inspire the way The Arts Catalyst went about things in the future. At our first meeting we had discussed the way science was still regarded with suspicion by artists and the way science had somehow been disconnected from mainstream culture

Coming from different backgrounds – Nicola as a rare woman in Imperial College's physics course turned theatre producer and me as an editor turned curator in London's rapidly changing contemporary art scene in the late 80's, we mused on the way the idealism about science we both remembered in the 'white heat' of the 60's had been tainted by the cold war and nuclear build-up of the Reagan/Thatcher 80's.

For my part, I brought some of the debates about the validity of hard science arriving from projects I had recently undertaken at the ICA 'The Incident' and the CCA Glasgow's 'Forbidden Science'- attempts by contemporary artists to get their heads around 'X-Files' culture in one way or another - to the table. Nicola, like many with a science background, was possessed of an almost visceral scepticism about some areas I had no problem in debating.

This did not prevent us from producing an early series at the South London Gallery, Parallel Universe, a view of non-western science, involving a number of views of science that did not fit with the paradigm, including Luis Eduardo Luna from the Brazilian Amazon on shamanism, Chinese-Canadian Paul Wong on actually appearing in the X-Files but more significantly Ansuman Biswas isolated in a box for 10 days practising Vipassana meditation, in the work 'Cat' (as in Schroedinger's). We would not know if he was dead or alive for 10 days (a health and safety nightmare), I went out of my depth on quantum physics on BBC's 'Today programme' and in the end Ansuman emerged, alive, to a gathered crowd, at least 2 TV crews and a shaman blowing a conch.

In my 2005 paper Ubiquity and Fluidity I spoke of twin axes which describe artists' movement into all areas of human society, including science, medicine and engineering, referring in general to the ability of artists to both flow and be everywhere in all sections of society and human activities and reflecting and building on Joseph Beuys' statement "All human endeavour can be art" – often misinterpreted as 'everyone is an artist'

A classic example of an artist who crashed through barriers like this to enter a world previously only inhabited by

scientists is that of Nicolas Primat, one of the few artists to work with primatologists. (Others include the US artists Rachel Mayeri, with whom the Arts Catalyst did a major project - 'Primate Cinema) But the Nicolas Primat example is an interesting one. The journey began, for me, listening to primatologist Sue Savage-Rumbaugh at the 1998 conference 'Toward a Science of Consciousness in Tucson on chimpanzee intelligence, the work of Jane Goodall and the way bonobos have been found to use complex trail markers to communicate silently. I knew then that somewhere out there would be artists wanting to make a work about this subject at the frontier of understanding the mind.

I have strong memories of Nicolas and myself haunting draughty and deserted English zoos after closing time, peering in at bonobos and gorillas (always sideways, never directly, as Nicolas instructed), of Nicolas and primatologist friends laughing at the ape-like antics of London private-view goers and engaging in lively discussions about apes and ethics, while watching him enact grooming procedures on his friends. Author Will Self's fantasy fiction 'Great Apes' lived on in the life of Nicholas Primat, who always looked happier among different species of primate than human and whose name exemplified the principle of nominative determinism - the theory that a person's name is given an influential role in reflecting key attributes of his job, profession, or general life (his name really was Primat).

The Arts Catalyst in its work has always managed to stumble across some individuals, who with their impossible dreams as artists, seem to sum up a whole mode of thinking about a scientific subject. Thus the above-

mentioned nuclear artist James Acord was able to change whole paradigms of thinking about ways to engage with the nuclear industry with his provocative proposals to build monuments with real plutonium rods (which he had purchased). Likewise, when I first saw video footage of Nicholas Primat in labs with baboons and spider monkeys swarming all over his semi-naked body, in defiance of health and safety, I felt the ground shift beneath my feet in my views about the human-animal interface and realised this was a new kind of artist.

I was introduced to Nicholas in an interesting coincidence. I had recently started living in a village along the Tarn Valley in France and was invited by curator Pascal Pique to a festival in a nearby village in which 10 artists were invited to make new work with 10 local families (Si-Affinité FIAC, near Toulouse 2003). In 'Loft Préhistorique' Nicholas had persuaded his allotted family to turn their neat villa into a prehistoric cave and live with the artist and his partner dressed in animal skins for the duration of the performance as pre-vocal humans, communicating only in grunts and cooking meat over an open fire for the duration. Nicolas showed me this work and also 'Portrait De Famille' (2003) - his key work made in close proximity with monkeys in a lab in Marseille.

In the event, we had an ambitious plan for Nicolas Primat's new idea, which was to make video with chimpanzees, using advances in knowledge about face recognition among higher primates, based on the famous mirror test done by Gordon Gallup in the 70's in which a sleeping gorilla was given a facial mark, then awoken. The gorilla proceeded to wipe the mark off, thus apparently proving self-recognition. In the middle period of my journey with the

monkey-man, Nicholas persuaded me to drop everything and attend the 2008 International Primatological Congress in Edinburgh, attended by thousands of primatologists of all shapes and sizes, emerging from lab, lecture room and jungle from all over the world.

For the curator of the Arts Catalyst this was the equivalent of first contact with a whole new world, equal to the world of astronauts and space agencies, the nuclear industry, or the world of genetic engineering. But for Nicholas this was an area he had been hanging around, always the outsider at the feast, for many years. Now, in the run-up to Darwin Year, with public outreach and participation now *de rigueur*, people were prepared to listen to the artist who wanted to be with monkeys. Out of the primatologists - some seeming to be directly emerging with backpacks from studying primates in the wild - came an ebullient expert in face recognition who had worked with Nicolas during her PhD studies years earlier in Marseille, Dr Sarah Jane Vick. With Sarah and the Arts Catalyst a project was developed where Nicolas would start the process of becoming habituated with a group of individual chimps, then see if the attachment to his image could be transferred to a video screen, and then continue to camera use.

But as always, there were delays and delays, hence Nicolas and I started on a series of visits to smaller private zoos to look for places where his interspecies dream could come true. Sadly, this project finished when Nicolas took his own life, just as we were about to get major funding support.

Another example of an artist breaking in to a scientific field in a radical way is Tomas Saraceno, who, through his enthusiasm for ballooning and living in the air, challenges

the idea of rockets as a means of getting into space. Floating into Deep space is a project I am currently working on with Saraceno. Is it possible for spaceflight to become more sustainable? Artist and architect Tomas Saraceno proposes a long-term art-science research project based on his initial work with solar balloons to join with the efforts of engineers such as John Powell, working on the Airship to Orbit experiments, which describe a three stage process of using airships to fly to a large suborbital “Dark Sky Station’ then literally floating into orbit with additional electrical and chemical propulsion.

“In his artworks Tomás Saraceno proposes cell-like flying cities as possible architectonic living spaces in direct reference to Buckminster Fuller’s *Cloud Nine* (circa 1960). The fantastic architectural utopia *Cloud Nine* consists of a freely floating sphere measuring one mile in diameter that offers living space to several autonomous communities encompassing thousands of inhabitants each. The notion of the cloud is essential to the artist’s work. The cloud as metaphor stands for artistic intention, for the meaning of territory and border in today’s (urban) society, and for exploring possibilities for the sustainable development of the human living environment. In Saraceno’s work this environment is not limited to the earth, but is explicitly conceived to reach into outer space”. (Biomimetic Constructions- On the works of Tomás Saraceno By Katharina Schlüter)

Also in my paper, Ubiquity and Fluidity I considered a number of barriers broken through by artists, including ‘subversive transmissions’, artificial intelligence and astronautics among many other areas. But art-science collaborations need to be more than the accumulation of data. So we need yet another axis or dimension - the

underpinning of 'reality'. Artists often like to play with the way real data can be skewed, manipulated, poeticised. This is no different than the disputes that might happen about anthropogenic climate change. The poetically challenging work of Agnes Meyer Brandis calls reality into question, for example, but with careful and meticulous research.

Agnes Meyer-Brandis looks for interesting science facts and researches her subject meticulously before seamlessly subverting them. Until recently it was impossible to predict where a meteorite will land. Now, it is almost possible to 'reverse-engineer' methods of prediction, with the first predicted fall of material in Africa in 2010. A lot of data came from the Chelyabinsk meteorite, which was the first meteorite landing to be documented, a accidental capture by a car's webcam, the so called 'dashcam' in Russia, which is used to record traffic incidents and prevent corrupt behaviour from traffic police.

Agnes Meyer Brandis had previously made large-scale performances, involving whole towns, emergency services and other participants to make it appear that a meteorite had believably landed. Now, for the Marrakech Biennale she wanted to attract meteors in the Negev desert, building a "meteor trap", using a previously unknown technology. The way Meyer Brandis works is to build up a believable theory than subvert it at the point of delivery, making the public 'want to believe'. Surprisingly her work is very popular with the science community, as she brings to the forefront of the public mind issues (such as the danger of near earth impacts) which scientists feel are neglected. Her work almost veers towards science communication, if it were not for the poetic detournement of the facts.

I'll end this essay trying to meet a challenge coming directly from the world of science communication in the figure of Prof. Arthur I Miller, whose book *Colliding Worlds* caught the science and art community by surprise with his assertions about the coming of a new 'third culture' which he has chosen to call 'artsci', although significantly, he did not include the work of Meyer-Brandis in his compendious volume. Miller spoke to a number of people in the world of science and art, but it is clear from many of his interviews that he had an agenda of promoting a hybridised third culture of 'artscientists' or 'sciartists'. As well as being opposed by Roger Malina I would also like to suggest this also runs counter to the process-based collaborative approach of organisations such as The Arts Catalyst who are interested in examining and exploring the way in which artists and scientists enter a dialogue through a deep understanding of each others practice.

To be fair to Miller, he represents one paradigm of art and science collaborations, of which there are many. While thinking about this article I listed at least eight of these starting with Miller's version:

These are:

- The 'hybrid' model, where it is claimed artists and scientists have the same objectives. (Miller's *Colliding Worlds*)
- The utilisation model (Kitsou Dubois)
- The 'science communication-driven' model. (Mainly exhibitions at the Wellcome Collection and GV Art, London)

- The ‘immersion’ model where artists go deep into studying the science (Jim Acord, and, not cited here, the biologist-artist Brandon Ballengee)
- This could lead to the ‘invasion’ model, where an artist desperately wants to be admitted to an artist-unfriendly discipline (Nicolas Primat)
- The ‘academic model’ where students can study the arts and science on an equal and integrated basis. (SymbioticA, St Martin’s science-art MA, Artists in Labs Switzerland)
- The ‘poetic version of scientific reality (Meyer Brandis)
- The ‘collaboration model, where the dialogue is more important than the results (The Arts Catalyst)

There are many more models and this essay gives only a few. But in this complex journey it is clear that a mature model of art-science collaborations is developing, if not a hybridised third culture, a new, dynamic and reflective dialogue between disciplines is emerging.

Some useful web references:

Cybernetic Serendipity unofficial archive:

<http://cyberneticserendipity.net/>

Roger Malina: <http://malina.diatrope.com/>

The Arts Catalyst: www.artscatalyst.org,

<http://beta.artscatalyst.org/>

Kitsou Dubois official site:

<http://www.kitsoudubois.com/>

Kitsou Dubois experiment:

http://www.artscatalyst.org/projects/detail/gravity_zero_dubois/

James Acord:

http://www.artscatalyst.org/experiencelearning/detail/james_acord_a_life_in_the_nuclear_age/

Nicolas Primat:

<http://www.artscatalyst.org/projects/detail/interspeciesLondon/>

Tomas Saraceno: <http://www.tomassaraceno.com/>

Space travel with balloons: <http://www.jpaaerospace.com/>

Agnes Meyer Brandis: www.ffur.de

Prof. Arthur Miller: <http://www.arthurimiller.com/>

Ubiquity and Fluidity: <http://roblafrenais.info/writing/>

This essay was commissioned by Riksställningar (Swedish Exhibition Agency) for its annual conference, Fluid Encounters between Art and Science, in Umea in 2014.

Dreaming the Theory Part 2. Notions of Hybridity

I'd like to start talking about hybridity in science and art. There has often been talk about a notion of something called sci-art, and the notion that the scientist and the artist are doing the same thing. At the Arts Catalyst, where I worked as curator between 1997-2014, our job was to set up collaborations between artists and scientists. One of the most obvious ways of making a natural collaboration was

to work in zero gravity. We worked with a dancer called Kitsou Dubois and the bio-dynamics group of Imperial College. The art project involved dancing in weightlessness but the science project involved serious research into musculature and zero gravity and the way it is affected by different stages of gravity, using transcranial magnetic stimulation (TMS) in a parabolic flight funded by the European Space Agency (ESA). The trained dancer was useful to the scientists in testing their theories about the way signals were sent from the brain in this environment, both outside and inside a zero gravity situation. This was a good example of a clear model of science and art collaboration, what I would call the utilisation model, where to some extent the art and the science do contribute to one another in terms of building up a body of knowledge.

But I think the main issue between art and science is the collection of data. Basically, the scientist has to collect provable and falsifiable data and then share that data among her or his peers and be evaluated worldwide in terms of peer review - then essentially - the boundaries of knowledge are increased by this process. Now, the scientist doesn't claim to know everything - they are still trying to expand the frontiers of knowledge – but it could be said that it is a fairly and regulated process by which this data become part of scientific knowledge. The artist, however, is dealing with dreams, poetry, ideas that may have no research value whatsoever, and with they might produce something that we might decide to call art. Now, Joseph Beuys of course, very famously, implied that everything is art, or all human activity is art – I think that has been misinterpreted as “everyone is an artist”. I think that what he was saying we should redefine the boundaries of art to

include all human activity. I think, when looking at that definition and also the definition given by Carl Andre, the sculptor, when he said “Art is what artists do” – we find ourselves in a philosophical place that is very different to the world of building up data and contributing to the body of knowledge that we call science.

This was very interestingly illustrated in the talk by Joshua Sofaer and Mikko Sams who made their Floating Platforms presentation very nicely, I felt, in two matching stripey sweaters which they had purchased from a shop in Turku. I felt that was a very interesting gesture, or statement, because it was, in a sense, playing out this notion of the artist and scientist being somehow similar. But of course the similarities in their presentation came out in a different way to their practice. They talked about a successful visit to London when Mikko visited Joshua and they discovered they liked the same kind of music, the same movies, food, alcohol, all those things. That to me is actually - quite seriously - part of the way in which a curator working in the field of art and science might choose to go about setting up a collaboration and one might actually want to think about those similarities quite a lot. They then went on quite interestingly to satirise their differences. I was also told they had spent most of their collaboration writing a funding application, which of course artists and scientists do a lot of. Some people felt they had spent so much time on their funding application that they didn't think about their collaboration. But the thing about collaboration is that if it is dealt with as a conscious act, it doesn't really work. You find yourself sitting in an empty room thinking: “what to we have to share, what can we do?” Much better to go on a long bike ride or spend some time drinking in a

pub talking about absolutely anything else apart from art and science.

So that's one model, I could think of many other models. It has been proposed by Professor Arthur Miller, from the UK, that there does exist something called 'Art-Sci'. I would completely disagree with this. He is, of course coming from the world of mathematics, which may account for this stance. He wrote a book called *Colliding Worlds*. I would tend to go with the viewpoint of Roger Malina, who is the son of Frank Malina, who was a rocket scientist who later became an artist. He was actually part of an exhibition, which was very formative to me in my life, called *Cybernetic Serendipity*, at the ICA in London, which I attended when I was a teenager in the '60s, which must have affected my later interest in art and science. Roger Malina discusses this dichotomy, exemplified in C.P. Snow's *The Two Cultures*. Malina has gone on record as expressing his "horror of a proposed syncretism of art and science in some mish-mash of a third culture." He goes on to say: "I don't believe that inter-disciplinarity is a discipline. I agree that there are very good intrinsic reasons why the arts and sciences have diverged, independent of cultural or organizational imperatives. Artists and scientists may both be trying to make sense and meaning out of the world we live in but their underlying epistemologies are distinct."

I tend to go along with that viewpoint. We do have some interesting cases-studies though, particularly those I encountered through working with *The Arts Catalyst*. James Acord, for example, is no longer with us now, but he wanted to make a sculpture out of nuclear materials and he set up his studio in the United States' largest 'Nuclear City'

called Hanford, where basically the atomic bomb had been produced. He was very interested in the issue of contamination and putting down markers in the form of sculpture, saying that “Here is a place that needs to be avoided” In order to do that he needed some nuclear materials, so he started off by using Fiestaware, which was a popular form of crockery, cups and saucers from the 30s that were very popular in the US. Many households had some. Unfortunately Fiestaware was extremely ‘hot’ - the bright orange colour was caused by mixing the clay with uranium. So he went about getting this stuff from antique shops and melting it down and trying to extract uranium. He was soon closed down by health and safety authorities in Seattle, where he was based. He got together with some nuclear scientists who he had met at an anti-nuclear counter-demonstration and decided that what he would do was train as a nuclear engineer. He took a vocational course in nuclear engineering, and as a result was able to purchase 12 nuclear fuel rods from Germany and thus becoming not only the first artist in the world, but the first individual to hold a licence to own radioactive material. He very proudly tattooed his licence number on the back of his neck. This was a very interesting example of an artist going deep into the scientific world. He started trying to look like a nuclear scientist of the era, right down to wearing a cheap suit, a workman’s shirt and a row of pens in the top pocket. Essentially he went into deep cover, his main associates during his artistic life being nuclear scientists and engineers.

I want to go back, now and somewhat repudiate what I said before earlier in this talk, which was that dreams had no research value. Many people are studying dreams, both in a scientific and non-scientific way, indeed an

interdisciplinary way. Referring back to Roger Malina's statement that interdisciplinarity in itself is not a discipline, I think we can bend and merge disciplines. I think we can break a few ground rules from time to time. For example, the artist Agnes Meyer Brandis essentially investigates scientific data rigorously, to the point of obsession, but then what she does is implant a poetic suggestion into the data. So that we are seeing what appears to be data, science, then she introduces an element of fiction into this. The interesting trick is you can't quite work out where the element of fiction is introduced, so for example in a large project I was involved with started with a study of long-haul migration of birds, in this case geese. She went to Siberia to study geese, which she claimed were able to fly, not only between the poles (there are indeed polar-migrating birds such as the Arctic Tern), but also suggesting there were a type of geese which would be able to migrate to the Moon and back. Instead of simply just asserting this, she got herself some geese. How do you get geese? Well, you give birth to them. She got some eggs and an incubator and she bred 12 geese she named astronauts, writing the names of famous astronauts on the eggs before they were born. Of course you could not actually prove that the goose now named Yuri Gagarin actually crawled out of the egg so inscribed, but at the point of being born they did have names. I met the goose called Neil Armstrong, after the first man on the moon who gave me a very substantial peck on the leg. If you are ever dealing with livestock in art always wear thick and heavy trousers!

Agnes Meyer Brandis's work is always based on actual scientific research. The work I am in discussion with her at the moment is based on gravitational anomalies. These do exist and scientists around the world are measuring

infinitesimal, tiny, variations in gravity with instruments. So for example, if you go to Poland there are some hotspots of gravitational changes. In a new work she wants to make a forest float in a region near some gravitational anomalies. She takes a scientific fact and expands and bends it.

Another example is the scientist Jean-Marc Chomaz, hydrologist working with the CNRS in Paris is also interested in poetic use of data coming from water and is working with artists, again working in areas that are not entirely scientifically proven.

I'd like to move on from artists using poetic data to the notion of actually challenging, or transforming science, so I'd like to argue – lets put it on a grand historical scale – that in the 19th century we really were not quite sure what variety of rationalism we were going to get. We saw scientists such as Sir Oliver Lodge talking to spirit mediums at the same time as Michael Faraday was demonstrating electricity to audiences at the Royal Institution in London. We had people talking about ghosts and spirits and trying to communicate with the afterlife. Then at the beginning of the 20th century a certain kind of rationalism began to push out the other stuff and the same time as we proceeded into the two world wars, science became very much in the service of war and had to get very serious about hard facts and measurements. A good example of this was Jack Parsons, the early rocket scientist, one of the 'suicide squad', along with the artistically-minded Frank Malina testing rockets in the desert, who in the '30s also became an occultist and a follower of Aleister Crowley. As the Second World War approached all that became less acceptable and Malina and the others, started work on jet propulsion in the service of the military. Then

after the war came McCarthyism and the atomic bomb, so those guys were all out.

Historically speaking, C.P.Snow, in the 50's bemoaned this situation. He talked about, in the Two Cultures, how science and art had been inextricably torn apart. This brings us forward, through Cybernetic Serendipity, to the beginning of an entente between art and science, with the E.A.T experiments of the Swedish artist Billy Cluver and others in the United States.

Finally in the 90's there was a blossoming in Europe of organisations like The Art Catalyst, the Wellcome Trust's Sci-Art programme, Artsci in New York and the founding of SymbioticA in Australia. So now I would argue we should be possibly moving into a mature stage of collaboration. Again, I'm not talking about interdisciplinarity for its own sake, I'm talking about scientists being able to challenge the way artists go about things and artists being able to challenge the way scientists go about things. I would start to talk about entering a transformational period. We had some conversations about this when I was in Turku. I felt there were different stages, separations, entente, then transformation. In the transformation stage I see things that scientists don't yet know being of interest, that is for sure. In terms of the way science is applied to society, why do we do things in a certain way? Here we come, actually, to my experience of Finland, which to me is a kind of interesting society, in that you appear to have innovation written into the texture of society. Why do I think this? – well, as a metaphor, look at the river. I can see lifebelts for rescuing people who have fallen into the river for whatever reason, but you also have ladders. I have never seen ladders by a river. To me, that is

very interesting. Someone in Turku has thought, ahead, someone might fall in the river, they have to get out again - lets put some ladders there. Another kind of society might think that if you put ladders there, people might steal them!

So what I am interested in, what this metaphor brings me to, is how society might be transformed by more innovative applications of science and technology. I think that artists do have a part to play in this. I'm currently working with the artist Tomas Saraceno on challenging the fact we need rockets, burning vast amounts of hydrocarbons, to get into space, to launch the satellites we are so reliant upon. So when we think about climate change, for example, we also need to have a paradigm shift, to think differently. Artists could think of ways round thinking out of that box. So this is a rallying cry to you at Floating Platforms, going into art and science collaborations at this mature stage. As Joshua and Mikko showed, you can take a humorous and at the same time radical approach to these things, and at the same time become involved in a transformative approach to the way science and technology is done.

This is a verbatim transcript of a lecture given by Rob La Frenais on the above themes for Floating Platforms, Turku, Finland in November 2015. It is based on the previous essay but included new elements, which is why I have included it here.

Deep Space at the Border/At the Border of Deep Space. A slow journey to the upper atmosphere.

I have always been interested in artists who try to dream the future. Artists who will take the materials they can get, now, and construct realities that would normally be described in a science fiction novel. Artist who build their own lifeforms, run their own railways, try to fly to the moon towed by geese, or just want to float up and live in space.

I first met Tomás Saraceno a ESTEC (the technical HQ of the European Space Agency) when we at the Arts Catalyst were contracted to try to show the team there how artists might propose some modest and doable projects for the International Space Station.

We had invited some artists to set some challenges, and Tomás's vision of how we can live in space, now, was probably one of the greatest. The bewildering blur of images of floating cities and solar balloons in reflective deserts seemed anything but modest and doable to the assorted space scientists and engineers, who were basically looking for a way to popularise the activities of the agency. Tomás had previously, I understand, hit a number of engineering brick walls while attending the summer school of the International Space University But he has not given up his dream of how we might approach deep space, floating there on balloons rather than blasting there on rockets.

The following summer we were trying to re-create 60's artist/architect Dominic Michaelis's floating dome (created

for the film Hu-Man) on a former munitions site near the M25 in London, England in the project 'Poetic Cosmos of the Breath' for The Arts Catalyst's Artists Airshow. We were trying to use lighter-than-air materials to create a vast, ethereal habitat, at dawn, with the rising of the sun. Unfortunately, that morning, as is often the case in the UK, the sun failed to rise, or at least to be seen to rise. At this point I learned how a project with Tomás requires patience and waiting for the right conditions. We had to wait a whole month until a group of us ventured out at dawn to see the silvery, translucent, dreamlike dome emerge from the dewy ground.

!It had occurred to me that Tomás's floating habitats might be suitable for training people to live in space, in an analogue environment. Many of the simulations were uninspiring environments, essentially metal containers like the Mars Desert Research Station (MDRS) in Utah or the sauna-like surroundings of the Mars 500 mission in Moscow where crews attempted to endure the 500 days needed to travel to Mars in a monotonous environment. I thought I would ask Tomás to think about designing a floating environment that physically challenged the inhabitants of the analog and arranged for Tomás to meet a couple of experts, Dr Regina Peldszus, who has studied monotony in long term space travel and medic Alex Salam who had overwintered in the Concordia station in Antarctica ('the coldest, most remote place on earth')

Here is a description of this project:

'Deep Space' is commonly used to describe a region beyond the Earth's orbit, anywhere from the Moon, Mars and other moons of the Solar system to exoplanets of other stars. In his major body of work, Cloud Cities, Tomás Saraceno imagines a future in which we live in

floating habitats in perpetual motion around the Earth's atmosphere. In contrast, the structures we design to scientifically investigate the human impact of long-term space exploration, such as the Mars Desert Research Station and the recent Mars 500 mission in Moscow, are static rehearsals for living and travelling in space.

In Deep Space Analogue, our team, led by artist/ architect Saraceno and organised by the Arts Catalyst, will construct a spherical floating habitat in which selected crews of 6 at a time (typical of a space mission) will face the physical challenge of movement across water as well as living, sleeping, and eating together for 10 days at a time. In the crew changeover periods, visiting of the general public will be able to enter the capsule for short periods. Human factors researcher Regina Peldzus, who worked on the Mars 500 mission, will be responsible for overseeing crew selection and organising specific experiments to take place during the 10 day period. She will focus on issues of leadership and governance in small groups. She will also use her knowledge of space architecture to advise Saraceno on construction of the Deep Space Analogue.

Biomedical expert Alex Salam is a Registrar in a London hospital who conducted medical experiments for the European Space Agency at the Concordia base in Antarctica during an over-winter expedition, in which the 12 person crew were totally physically isolated for 9 months. He will oversee ethical and medical safety issues during the 10 day 'journeys' and suggest possible protocols for gaining useful data from the crew's experience.

The crews of 6 will be selected using 'selection in' techniques concentrating on their positive abilities to conduct artistic and scientific projects, as opposed to 'selection out' techniques based on their unsuitability, although they will need to be physically fit (this should not exclude disability). The opportunity to participate will be advertised through art-science networks. The long-term outcome will be the preparation of a larger project to sail a similar but more

exhaustively designed habitat, with a lighter-than air potential, (that could float during rough weather) to cross the Atlantic accompanied by a support vessel.

The Deep Space Analogue project didn't immediately get the biomedical funding for which it was aimed but continued in two manifestations, firstly in 2012 at the Wide Open School at the Hayward Galley, along with myself, Dr Alex Salam, architect Graham Stevens and a videoconference with Dominic Michaelis, led by Tomás and described here: 'Drawing on the ideas of visionary architect Buckminster Fuller who said that as inhabitants of Spaceship Earth 'we are all Astronauts', Saraceno and his team of experts invite people to join him to envisage living in outer space and what structures that would entail.'

It was also discussed in 2013 at the Lighter than Air architecture workshop, at the Paris atelier of Columbia University NY, organised by Tomas, in which I also participated along with astronomer and visionary Professor Roger Malina. Both workshops investigated models of living in Deep Space, involving human factors investigations and architectural projects.

But it was in 2014, standing on the Mexican Border with the US the idea of inhabiting the border between earth and space, wherever that is, was discussed seriously in the context of the Deep Space project. On our road trip from the border to the Albuquerque Balloon Museum and a meeting with Mars mission parachute/inflatable expert Donald Wayne, Tomás outlined his enthusiasm for the idea of Airship to Orbit, a DIY movement for literally floating into space by balloon. This is theoretically physically impossible but space engineer John Powell of JP Aerospace ('America's Other Space Agency') thinks it can

be done, with a three stage process, building large floating Dark Sky Stations, reachable by re-usable airships, in the upper atmosphere and launching extremely large powered (but also inflatable) orbital ascenders to reach orbit. The speed and vacuum would require new materials not yet developed for this stage but the idea of inhabiting the upper atmosphere with floating stations is a perfect high-ambition match for Tomas Saraceno's vision of floating cities and solar balloons that stay in the air for unlimited periods.

Finally visiting the dramatic landscape of White Sands desert, we consider the possibilities of a solar balloon launch and a nomadic conference on *Airship to Orbit*. After spending time on the highly militarised US border we ponder the ethical difficulties of accessing the kind of expertise Tomas need for his long-term projects. Both engineers and experts we have been talking about have no compunction about accessing funds and resources from the US military and the Department of Defense. John Powell moonlights 'making widgets' for the military to raise funds, and Donald Wayne, who pioneered the parachute/inflatable concept for NASA's Curiosity rover, also help develop this system for dropping atomic bombs. It is ironic that the main civilian space programmes rely on flying in a system 'where ascent means strapping yourself atop a giant flying gas tank with powerful engines tweaked to the brink of exploding ...(and) plummeting back toward to Earth inside a manmade meteor'. (Interview with John Powell in *Discovery Magazine*)

But perhaps working in the cold war landscape adjoining the US/Mexico landscape near Alamogordo and the Trinity Test Site these issues will always come up. Artists are managing to produce work and operate a cultural

framework in nearby Ciudad Juarez, a name normally associated with Mexico's lethal drug wars. We are talking about launching Museo Aero Solar on the border. This is an international movement founded by Tomás, but now spontaneous and independent, dedicated to constructing solar balloons from found materials in an act that would involve whole communities, from the Mexican border at the same time as talking about living at the border of space, as Tomás wishes to do.

This project was achieved in November 2014 but evolved from the original idea to the conference Space Without Rockets and the first ever human flight with a solar balloon in White Sands desert, as described next.

Space Without Rockets – cultural and human factors approaches to sustainable space travel.

Space without Rockets was the first meeting about sustainable and lighter than air space travel addressing both a technological and cultural approaches to the subject, inspired by the work of Argentinian artist Tomas Saraceno and engineer John Powell of JP aerospace, initiated by curator Rob La Frenais. In the heart of America's space landscape, near the White Sands Missile Range and not far from Spaceport America, the event focussed on some of the core questions that lie in the practice of internationally acclaimed artist Tomas Saraceno. Is it possible to imagine a future where space travel can happen without burning up hydrocarbons, increasing climate change and joining the nationalistic hegemony of the space race? Informed by Saraceno's ideas, the event looked at alternative visions of space travel through the lens of art and artistic activity, and included artists who question the meaning of space exploration, the human factors surrounding it and the

landscape of West Texas and New Mexico, home to the history of rocketry and future of space tourism. This essay reports and reflects on the results and the implications for education and outreach about new paradigms of space flight including the demonstration of the first human flight in a registered solar balloon, without using any inert gases or hydrocarbons, which took place in White Sands Desert.

It is now almost a year since the Argentine-born artist Tomás Saraceno launched the first certified human flight in a zero-carbon solar-powered hot air balloon, the D-0AC air fuelled sculpture which floated for nearly three hours, becoming buoyant only by the heat of the sun and infrared radiation from the surface of the earth, at the White Sands National Monument in New Mexico in the USA. (1)

Organised by Studio Saraceno, curator and author of this paper, Rob La Frenais and the Rubin Center at the University of Texas at El Paso (Director Kerry Doyle), the world record-breaking launch took place at dawn on November 8 2015 within the context of the exhibition 'Space Without Rockets' at the University. Since then a number of associated projects under the title 'Aerocene' have taken place, notably at the COP21 Climate Change conference and a series of unmanned solar launches in Germany.

The artist, Tomás Saraceno, said of the overall project: "Aerocene is an artistic project, an invitation to shape a period of time, a new epoch", while visiting writer and former colleague of the curator and author, Nicola Triscott said: "Aerocene holds a message of simplicity, creativity and co-operation for a world of tumultuous geopolitical relations reminding us of our symbolic relationship with

the earth and all its species”.

Some context for the desire for sustainability in space travel should be given here. A recent NASA study in 2011 on the consequences of 1000 space flights per year (as opposed to 70-100 annual launches today) indicates that changes in climactic balance could cause polar surface temperatures to rise by 1 degree centigrade and reduce polar ice by 5-15%. There is also the issue of black carbon which once spread into the stratosphere, remains suspended in orbit for 10-20 years absorbing visible sunlight.

Or, put more dramatically by John Powell of JP Aerospace, a proponent of sustainable space travel: “the main civilian space programmes rely on flying in a system where ascent means strapping yourself atop a giant flying gas tank with powerful engines tweaked to the brink of exploding ...(and) plummeting back toward to Earth inside a manmade meteor”.

Space engineer Powell, who gave a keynote presentation at the ‘Space Without Rockets’ about Airship to Orbit, a DIY movement for literally floating into space by balloon. This is theoretically physically impossible but Powell’s JP Aerospace (‘America’s Other Space Agency’) (3) thinks it can be done, with a three stage process, building large floating ‘Dark Sky Stations’, reachable by reusable airships, in the upper atmosphere and launching extremely large powered (but also inflatable) orbital ascenders to reach orbit. The speed and vacuum would require new materials not yet developed for this stage but the idea of inhabiting the upper atmosphere with floating stations is a perfect high- ambition match for Tomás Saraceno’s vision of floating cities and solar balloons that stay in the air for

unlimited periods.

Rob La Frenais in initiating this project, has always always been interested in artists who try to dream the future. Artists who will take the materials they can get, now, and construct realities that would normally be described in a science fiction novel. Artists who build their own lifeforms, (SymbioticA and others) run their own railways (Hehe and SEFT-1), imagine flying to the moon towed by geese (Agnes Meyer-Brandis in an exhibition curated by the author – Republic of the Moon) (4) or just wanting to float up and live in space, like Tomás Saraceno.

In his artworks Tomás Saraceno proposes cell-like flying ‘Cloud Cities’ as possible architectonic living spaces in direct reference to Buckminster Fuller’s *Cloud Nine* (circa 1960).

Rob La Frenais first met Tomás Saraceno at ESTEC (the technical HQ of the European Space Agency) when he was working with the science-art organisation The Arts Catalyst, who were contracted by ESA to try to show the team there how artists might propose some modest and achievable projects for the International Space Station. (Study for the Cultural Utilisation of the International Space Station) (4)

The Arts Catalyst had invited some artists to set some challenges, and Tomás’s vision of how we can live in space, now, was probably one of the greatest. The bewildering blur of images of floating cities and solar balloons in reflective deserts seemed anything but modest and achievable to the assorted space scientists and engineers, who were basically looking for a way to popularise the activities of the agency. Tomás had previously hit a number of engineering brick walls while attending the summer

school of the International Space University. But he had not given up his dream of how we might approach deep space, inspired by John Powell, of floating there on balloons rather than blasting there on rockets.

Saraceno's work reflects a growing global movement of artist-scientist-activists who are working in such a way that the imaginary of space becomes an expansion of the social imaginary, providing alternatives to traditional state-based and emerging commercial interests. Through both artistic and participatory practices, these artists are generating new possibilities for relating to the skies and to one another.

The following summer they were trying to re-create 60's artist/architect Dominic Michaelis's floating dome (created for the film *Hu-Man*) on a former munitions site near the M25 in London, England in the project *Poetic Cosmos* of the *Breath for The Arts Catalyst's 'Artists Airshow'* (6). We were trying to use lighter-than-air materials to create a vast, ethereal habitat, at dawn, with the rising of the sun.

Unfortunately, that morning, as is often the case in the UK, the sun failed to rise, or at least to be seen to rise. At this point they learned how a project with Tomás requires patience and waiting for the right conditions. They had to wait a whole month until a group of them ventured out at dawn to see the silvery, translucent, dreamlike dome emerge from the dewy ground.

In contrast when some 50 people, crew, escorting military personnel and onlookers, arrived at dawn at White Sands Missile Range it was a radiant sunrise, under a cloudless sky, without the faintest breeze. Pulling out the balloon on to the white sand quickly, (permission had been given by the Missile Base authorities for only a short window on this otherwise highly-restricted area of the sands), the vast,

black solar balloon inflated extremely quickly, as the sun warmed the air inside the balloon and the air molecules became less dense than the outside air. Soon a large group of 25-30 people (half the onlookers) were needed to secure the tethered structure as it rose high in the air, ready for solar flight.

Nicola Triscott described the scene: In the early morning, the balloon looked as though it could barely lift itself, let alone a person. But, as the desert heat gathered force and the sun's energy bounced back off the dazzling white sand into the balloon, adding to the heating effect, the balloon gathered strength. With Marija, an experienced balloonist from Croatia, suspended by a skydiver harness below the balloon, it lifted off the ground, controlled by the volunteers holding its ropes. A gentle breeze moved the balloon along the dunes and between them. As the sun rose further, the balloon's strength increased, lifting Marija higher. The balloon strained against its tethers. The balloon became a formidable beast striving to rush upwards to its home in the blue sky. More people joined the ropes to control it. After a few hours, the expert balloonists decided it had become too powerful to control and, after some less than successful testing of the venting, the balloon was gradually brought to the ground and emptied of its blisteringly hot air.”(7)

The historical context of this historic launch and symbolic location in White Sands desert has a number of resonances here. Von Braun and his scientists were brought here with from Germany the captured V2 rockets and were tested here as as a precursor to the space race and Apollo. One even crash-landed across the Mexican border into a graveyard in Ciudad Juarez. Near to the Aerocene launch site was until recently the emergency landing strip for the

space shuttle. JPL and rocket pioneer Frank Malina launched the first rocket, the WAC Corporal, from here into the stratosphere. Not so far away is Spaceport America, where Virgin Galactic has yet still (at the time of writing) to launch SpaceshipTwo to take tourists into suborbital space, again increasing the environmental byproducts of space launches.

But most significant to the project is the physical proximity to the 'Trinity' site in White Sands desert of the first detonation of a nuclear weapon by Robert Oppenheimer's team, bringing to Oppenheimer's mind the words from the Bagavad Gita: "If the radiance of a thousand suns were to burst at once into the sky, that would be like the splendor of the mighty one..." The explosion of this first bomb is considered a possible milestone to mark the beginning of the Anthropocene, the geological era where geologists are beginning to recognize the irreversible influence of the human.

Before the launch Saraceno had previously taken part in 'The Anthropocene Monument' a conference convened by sociologists Bruno Latour and Bronislaw Szerszynki and inflated his community project Museo Aerosolar, a diy balloon constructed from waste materials collected by citizens in various cities worldwide. The seeds for the Aerocene project were sown here and led directly to the White Sands launch. Writer Ewen Chardronnet, also present at the launch asks: "What better message to send the world leaders and COP21 than an aerosolar action in this natural space marked by 20th century military escalation? 70 years after the bomb and the rocket, could this maiden solar-powered flight mark the beginning of the Aerocene? (8)

It is also significant that the launch of Aerocene took place near the border with Mexico, and that the artist, Tomás Saraceno is Latin American, as were a number of the participants in the Aerocene launch who were from Mexico, part of Nahum Mantra and Ale De La Puente's 'Matters of Gravity' project, showing simultaneously at the Rubin Center, Director Kerry Doyle, who says in an upcoming article in Leonardo Online, 'Territory of the Imagination - At the Border of Art and Space':

“As Latin American countries expand and develop their own emerging space programs, Latin American artists are responding in critical and imaginative ways to the possibilities of space, rejecting the idea that in the new realm of outer space, that countries must proceed within a limited range of existing political and economic structures and replicate historic and unsatisfactory relationships between the United States and the rest of the region” (9).

Aerocene continues to build up a worldwide momentum, with a presentation at COP21 in Paris and the project continuing in the summer of 2016 with a series of unmanned Aerocene flights from Germany, including from a refugee camp and with students of Saraceno from Braunschweig's Institute of Art and Architecture, including a 500 km flight from Germany to Poland. In the spirit of the Museo Aerosolar, Studio Saraceno has also set up the Aerocene Explorer project, a DIY citizen science initiative consisting of a tethered-flight starter kit, which will enable anyone to personally launch their own Aerocene solar sculpture and explore the skies. The DIY kit comes with a small camera and sensing devices to record air temperature, humidity, altitude, and air pressure. (10)

Saraceno has often emphasised in his work and research

the importance of exploring the upper atmosphere as having been bypassed by exploration vehicles on the way to orbit and beyond. Even if ‘Space Without Rockets’ never becomes possible in the near future; as the Latin American group ‘Movimento dos Sem Satélites’ has pointed out, the possibilities for exploring, floating communications devices utilising these regions could be the future ‘frontier’ for a new civil-society based space exploration movement, kick-started by the world-changing and transformational Aerocene project.

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6 <http://tomassaraceno.com/projects/poetic-cosmos-of-the-breath/> 7

<https://nicolatriscott.org/2015/11/17/aerocene-flight-without-borders/>

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⁸ <http://www.makery.info/en/2015/11/30/cop21-le-premier-vol-de-montgolfiere-zero-carbone/>

⁹ <http://rubin.utep.edu/index.php/past1/68> ¹⁰

<http://www.aerocene.com/aerocene-explorer-1/> ¹¹

<http://devolts.org/msst/>

Presented at the 67th International Astronautical Congress 2016, Guadalajara, Mexico as part of the Space Education and outreach symposium – Space Culture – Public engagement in space through culture.

Note to The Time Lords- It's the End of an Epoch

Which is shorter? An era, an epoch or an eon? The epoch is actually the shortest period in geological stratification, the way in which the earth's geology is measured and there is an international body responsible for measuring it, the International Commission on Stratigraphy - wryly nicknamed by geologists the 'Time Lords'. There is a serious move afoot to rename the current epoch - the Holocene (only 11,700 years) as the Anthropocene in 2016 - based on the very real effect humans have had on the earth, mining, drilling, nuclear testing, cities etc. on land and in the oceans drag fishing, toxic waste dumping and of course the famous 'plastic island' in the Pacific. That's not to mention anthropogenic climate change. It is fair to say that if the Time Lords decide to rename the planet's epoch it will be the defining moment when the geological becomes political.

The ‘anthro’ words have to be some of the buzzwords of the last couple of years and the ‘Anthropocene’ has rapidly been adopted as the spasmodic twerk of the theorists. No less than the French philosopher Bruno Latour, known mainly in this country for his sociological analysis of science in ‘Laboratory Life’, but something of an intellectual rock star in France, has now declared an intention to construct an ‘Anthropocene Monument’ and recently convened a colloquium at Les Abbatoirs open to the public to debate what this might be. It’s part of a series of events in Toulouse over the last few years “whose objective has been to try to capture the ecological question in its entirety.” The French don’t do things by halves.

That said, Latour, with his UK-based collaborator, Bronislaw Szerszynski, from Lancaster University, managed to round up a pretty impressive bunch of monument constructors. Artist Adam Lowe, also from the UK, now based in Madrid, represented the terraforming wing of the dark ecology world with his impressive models of a flooded world. Yet he wants to pursue his obsession with drowned worlds in an ambitious proposal to green the Sahara desert by literally lowering the Mediterranean by draining it into the Quattara Depression in Egypt. No less impressive are Tomas Saraceno’s plans to follow in the footsteps of Buckminster Fuller and create a series of cloud cities in the upper atmosphere, from which we could more sustainably venture into space, by floating in enormous lighter than airships. For now, he brought the collaborative ‘Museo Aero Solar’ a community-built airship from local waste materials to Toulouse, filling the main hall of the museum. Lise Autogena and Joshua Portway’s ‘Black Shoals’ project presented a different ecology, that of the worldwide flow of capital in

uncontrollable waves, like the ocean currents that take hundred of years to traverse the now human-altered earth.

Do we now, as Gustav Metzger proposed in his recent Serpentine Extinction Marathon, accept the end of the humans already? In that case the Anthropocene epoch may be the shortest yet. Hence the need, as Latour and others assert, for a Monument. Trevor Paglen, in his presentation at the Serpentine, says we already have it, in those geo-stationary communication satellites that will never descend and could well remain there after humans are extinct.

Version of this published in Art Monthly 2014

Shifting Pavilions

Attempts to break down the 'great game' alignment of national pavilions at the Venice Biennale are nothing new. In the last 2 decades we have seen newly-formed nations occupy off-site buildings, protest pavilions, social meet-up pavilions – the infamous 'Manchester Pavilion' which was just a bar near Zattere, the New Forest Pavilion, the Pavilion for Anonymous Stateless Immigrants, you name it - there is a Pavilion for it. The Scottish and Welsh pavilions were originally almost regarded as protest pavilions against the looming British Pavilion on top of its hill in the Giardini, long seen as the 'English' Pavilion. Now the British Council are coyly marketing all three pavilions as part of the UK's presence in Venice, particularly poignant as Scotland edges towards full nationhood after the results of the UK election which coincided with the opening days at the biennale and required much imbibing of Spritz Aperol to deaden the pain.

Influenced by the Biennale's theme 'All the Worlds Futures' and led by curator Okui Enwezor from the perspective of the Southern Hemisphere, many of the former external pavilions have been gathered to the bosom of the biennale and moved inwards to the Arsenale, almost as if magically magnetically attracted by the power and vigour of the mesmeric avatars in the Chinese Pavilion's 'Folklore of the Cyber World' in an industrial building at the end of the massive exhibition promenade. The Albanian, Slovenian, Croatian, South African, Thai, Georgian, Singapore, Peruvian, Mexican and many more pavilions have moved into the main complex and have clearly benefited from this. The Mexican Pavilion has even made a thing of it - the giant metal structure containing impressive lagoon pumping devices by Tania Candiani and Luis Felipe Ortega is constructed in the shape of a map, when seen from a stairway from above, which shows the migration of the pavilion across Venice to its final resting place.

During the opening celebrations, The Pavilion of the Holy See (The Vatican), also in the Arsenale, appearing for the second time, showed an unusually secular mixture of artists. It is probably the first time a Rome Cardinal has posed for pictures with the artist (Elpida Hadzi-Vassileva) beneath an impressive latticework of pigs' intestines. Elsewhere, in the Tuvalu Pavilion, visitors are asked to walk an unsteady plank across water, in a work by Vincent Huang, in a rather obvious symbol of rising water levels.

Some national pavilions, whether inside or not, have discovered the power of hiring effective Italian marketing companies. The Azerbaijan pavilion made sure you knew about them with a giant advertisement by St Marks square

on the waterfront which was the first thing you saw on arrival, making you think its pavilion was right there, instead of being tucked away discreetly in San Stefano. The Mexican Pavilion went one step further – its distinct blue billboards for the exhibition ‘Possessing Nature’ appearing on street furniture in the most unlikely parts of Venice.

Possibly the best comment on the shifting nature of nationhood and its national Pavilions came, though, in the main Giardini site in the Serbian Pavilion, formerly the Yugoslavian Pavilion. Ivan Grubanov has collected ‘dead flags’ of nations that no longer exist, coated and distressed them with chemicals. Starting appropriately with Yugoslavia, his ‘United Dead Nations’ include the Austro-Hungarian Empire, the Union of Soviet Socialist Republics, Czechoslovakia, German Democratic Republic, Tibet and many others, in an attempt to question: “the notion of the nation represented in our post-global times by putting in focus the nations that no longer exist as such, but whose ghosts are still conditioning the geo-spheres they had occupied” The Union Jack may yet enter Grubanov’s installation. Put out more dead flags.

Published in thisistomorrow.info 2015

Sandwich Technologies – Tania Candiani

Much has been said about the geopolitical nature of the alignments of the national pavilions at the Venice Biennale. This year, in the context of ‘All The World’s Futures’, directed by Okwui Enwezor, a significant change has been the highlighting and migration of former ‘excluded’

pavilions – that many visitors arrive at almost as an afterthought – into the main Arsenale section. No exception to this is the Mexican pavilion, which (along with the Azerbaijan pavilion) also managed to achieve prominent marketing around the city, its distinct blue billboards everywhere. More on this migration later, but one of the main pulls of the Mexican project ‘Possessing Nature’ was the team of collaborators – curator Karla Jasso, artist Luis Felipe Ortega and a rising force in Latin American contemporary art, Tania Candiani.

Many recent advances in contemporary Latin American art, particularly the explosive increase in media art, have been powered by the concept of repurposing reclaimed technologies. Candiani is no exception. Her contribution in Venice was influenced by an extraordinary historical event when the invader Cortes was fighting a war between Aztec factions, with only a few thousand soldiers and some horses. Mexico City at this time was criss-crossed by a massive system of canals. As in Venice nowadays, the Aztecs relied entirely on these canals for moving around the city, inflicting several defeats on Cortes. Apparently, the wily conquistador decided to hack the system and drain the canals, thus rendering the enemy helpless to the Spaniards, ~~travelled~~ **travelling** by horse. This colonial manoeuvre has its recent echoes in the way the forces of neoliberalism are rampant in Mexico and similar countries, privatising or closing state infrastructure everywhere. For example, the privatisation of the Mexican railway system led to the comprehensive closure of the extensive passenger system. Even now, the current government, hand-in-glove with a super-rich developer, is set to drain the city’s remaining lake, Texcoco, to build a new airport.

All of these issues are addressed by Candiani's participation in the Venice project. One of the artist's main interests is engineering and she has built an elaborate pumping device for draining the Venice Lagoon in significant quantities and recycling it through the Arsenale in a provocative act of reverse colonialism. She describes this action as 'historical biopsy'. Influenced in her childhood by images from Jules Verne and *Popular Mechanics*, Candiani, daughter of an architect, was given access to power tools in an era when girls were definitely discouraged from pursuing a career in engineering. Born in Mexico City, she became active as a visual poet and writer in Tijuana, moving in circles like those depicted by Roberto Bolaño in *The Savage Detectives*. Did she see herself as linked to that cocktail of dishevelled feuding poets, 'magical substances' and madness, escaping to the border in a stolen Chevrolet Impala? Of course. In any case, her early involvement in literature paved the way for her later work involving complex intersections between language systems, sound and the logics of technology – what she calls 'sandwich technologies'.

A turning point in her practice, bringing her from literature to visual art, was when in the late 1990s she was invited, as a writer to take part in 'InSite', one of the first international contemporary projects to take place at the Mexican/US border between Tijuana and San Diego and involving many significant artists, including Francis Alÿs, Vito Acconci and Andrea Fraser. This was an important turning point, moving her towards collaborative community-based performance actions. Working with battered women in a shelter in Tijuana she devised technologies for self-defence using everyday objects such as buckets and brooms.

She remained working in Tijuana and continued with the theme of repurposing domestic objects as weapons when she was invited to take part in 'Battleground' in El Paso and Juarez at a time when the endemic violence in Juarez was at its most dangerous. Working with students on both sides of the border she engaged, in the words of curator Kerry Doyle, in an 'intimate exploration of the feminine body preparing for or engaged in battle with unseen forces...protecting her body using common kitchen implements as both weapons and armour'.

Because of the difficulty of taking students from El Paso into the dangerous environment of Ciudad Juarez, the work finally emerged as a virtual performance on an early version of open-source Skype, with participants barricaded in a room on the Juarez side and another 'army' of participants on a hillside overlooking the militarised US border wearing the pots, pans and brooms of a popular uprising in an impossible but moving protest against the violence fuelled by corruption, movement of capital rather than people, and the unwinnable 'war on drugs'.

Turning to her current work, which mainly involves lost technologies which she describes as 'impossible inventions, inventions that get you stuck', Candiani embarked on one of her major participatory works this decade: a magnificent giant organ. Operated by the public via an ancient typewriter in a 17th-century convent in Mexico City (now Laboratorio Arte Alameda) *Five Variations on Phonic Circumstances and a Pause*, described by Karla Jasso as 'the result of scientific investigation that contains a "magic" side that elicits astonishment and desire in spectators'. This work was also shown in Ars Electronica in 2013, winning an award of distinction. An interest in disappearing technologies and craftsmanship was also developed in her

recent work with wooden ceiling trumpets in the Scottish highlands as part of the ~~2014's~~ **2014** Glenfiddich artists' programme.

But perhaps the most audacious project by Candiani was that for a Russian zero gravity flight, inspired believe it or not by Edison's proposal for anti-gravity underwear intended to allow the viewer to see the tops of large paintings. This will be the inspiration for a new project in which she hopes to design a jetpack-style flying jacket with a backyard engineer in Mexico City. In her project in Star City, she decided to re-enact the unsuccessful flight of Besnier, a 17th-century French locksmith. In the exhibition 'Matters of Gravity', curated by Nahum Mantra and Ale De La Puente, now showing at the Polytechnic Museum in Moscow, Candiani is seen, weightless, strapped into an exact replica of the wooden 'flying device' with which Besnier tumbled to his death.

'Possessing Nature', which has just opened at the Biennale has, despite an interesting backstory, received mixed reactions. In a large Richard Serra-like structure, the deep sound of rushing water can be heard resonating throughout the building. To see it properly, one must climb steps overlooking the vast steel structure, where lagoon water flows in what Candiani describes as 'a system of contention and loss'. Videos below superimpose Venice canals and Xochimilco, the sad remains of Mexico City's canal system, now a popular folkloric tourist destination – floating boatloads of wedding parties and mariachi bands, almost parodying the grandeur of this ancient Aztec system – not unlike the bobbing vaporettos filled with the nomadic partying art crowd of Venice. The parallels don't end there. When you finally climb to the viewing platform it can be seen that the structure is the shape of a map

reflecting the various migrations of the Mexican pavilion in four different incarnations, moving across the city to different locations. This subtlety may well have been lost on the *vernissage* crowds moving around this increasingly monstrously-sized Biennale. This was the initial premise, but the underlying strength of the basic idea behind re-draining the canals of Mexico and Venice, coupled with the tumultuous exchange of fluids between lagoons, is obscured. That said, Candiani, now ‘consecrated’ – as they say – by the Biennale, has the vision and ability to continue with her repurposing of the past, fuelled by her intense and poetic research into those lost moments of magic and technology.

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States of Mind

Visiting the Wellcome Collection’s special exhibitions can often seem like a delirious concoction of the hospital ward and fairground. Entering through the Medicine Man exhibition, with its dancing illuminated skeletons, one approaches ‘States of Mind - Tracing the Edges of Consciousness’ as if one is being checked in to a rather didactic teaching hospital designed by Douglas Adams with its specialist departments – the ‘Science And Soul’ ward, the ‘Sleep and Awake’ ward, the ‘Language and Memory’ ward and the ‘Being and Not Being’ ward. Indeed some of the displays deliberately evoke the architecture of the hospital, with the main commission (there are a series) by Imogen Stidworthy ‘The Whisper Heard’ space within long, white, enveloping hospital curtains with monitors

mounted on surgical trolleys and the echoing, spooky sound of the artist's child's voice. In fact Severin, in this commission by Matts Gallery, is attempting to read from a chapter in Jules Verne's novel 'Journey to the Centre of the Earth' (1864) - only partially understanding the words - while Tony, an adult recovering from a stroke that caused aphasia, which affects the language centres in the brain tries to do the same, entirely understanding but not able to get out the words.

One is plunged fully into the hospital ward in Aya Ben Ron's disturbing 'Shift' in which we see lengthy moments of interaction with 'clinically unaware' patients. The incredibly patient-care staff attempt to get through to the patients, using in one case, pet animals to lick the hands of the patients, also known as 'persistently vegetative'. Another artist in the exhibition, Louise K. Wilson has herself seen the interior of many clinical environments - she spent a number of years offering herself as a subject in medical tests and documenting this as an artwork. In 'Timeline' - a process work made with psychologist Professor Madeline Eacott, she is collecting earliest memories and the dates at which they are remembered on postcards left by visitors to the exhibition, which will go into a developing sound work 'Memoriagraph'. She is not the only 'memory collector' in the exhibition. AR Hopwood's 'False Memory Archive' collected these false memories from many volunteers whose brains either have their gaps filled using information and experience of the world or who are simply deceived by suggestive, images. In 'Crudely Erased Adults' (Lost in the Mall) Hopwood shows reworked red security camera images from Westfield of children much too young to be alone, wandering in the mall. An apparent letter to the security company

requesting the images pinned to the wall suggests
Hopwood may be manipulating our memories too...

The dramatic mannequin by Goshka Macuga
'Sommambulist' is used by the Wellcome Trust as a motif
and also marketing visual for the exhibition and is clearly
effective. Like the Collection's previous art and science
exhibitions which ask the big questions about humanity,
for example 'The Institute of Sexology', they are going for
the big numbers and the exhibition, late in its run, was
clearly crowded by a young and enthusiastic public. But like
that show, I kept feeling I was missing something. Unlike
other museums such as the Science Museum, the
Wellcome Collection is clearly not lukewarm to the idea of
completely integrating contemporary artists into its
displays. Somehow (the Stidworthy excluded, perhaps) it
feels that the artists are not allowed to make the viewer feel
uneasy or challenged. This is enhanced by the annoying
(for me) way in which the contemporary art is somehow
mix-decked into the historical collection and becomes
indistinguishable from it, as if there is a seamless transition.
Other historical exhibitions where this strategy is used, the
contemporary art challenges the display – here it simply
seems to join the drumbeat. Every time I have visited one
of these exhibitions I have had to keep asking – which of
these is the art? Perhaps, to the crowds wandering through
the art-science hospital wards, it doesn't matter. For me, I
want art to challenge, not complement the science. Maybe
that's the next step for this series of exhibitions about the
big human questions.

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Earth Is a Cradle

“Earth is a cradle, but we cannot stay in the cradle forever”
- Konstantin Tsiolkovsky. Most people who know something about space history - apart from the fact that the first man in space was Yuri Gagarin and that Sputnik scared the hell out of the cold war West - are familiar with this maxim. It appears at the very end of the Science Museum’s keystone exhibition, *Cosmonauts - Birth of a Space Age*- the first significant attempt in this country to present the Russian/Soviet Union version of the Space Race to a general public. Born out of a long diplomatic dance between the UK and Russia, the exhibition begins with a bang with a Suprematist painting by Ilya Chasnik, less well-known than Malevich but no less impressive, and some impressive never-before seen drawings by Cosmist thinker and engineer Tsiolkovsky, including extraordinary depictions of a spaceship from the late 19th century.

It’s a long journey from the hopes of space enthusiast clubs of the 20’s, when ordinary Russians allegedly melted down household cutlery to build rockets, to the present, when a chastened NASA rely on former Soviet technology to get their astronauts back and forth from the International Space Station. If the celebrated but shadowy ‘Chief Designer’ Yuri Korolev, whose portrait welcomes us as we enter, had lived, the Russians may well have been the first on the Moon.

Boris Groys recently published an apposite recent essay which reflects this era in the e-flux Supercommunity journal – ‘Cosmic Anxiety- The Russian Case’, in which he cited the point in Russian history immediately before the Russian Revolution in which “writers and artists invoked

the coming of chaos—most famously the authors of the mystery-opera *Victory over the Sun*. The most prominent members of the Russian avant-garde movement of the time participated in its production: Kazimir Malevich, Velimir Khlebnikov, Aleksei Kruchenykh, and Mikhail Matyushin... The opera celebrated the extinction of the sun and the descent of cosmos into chaos, symbolized by the black square that Malevich painted for the first time as part of the scenography for the opera” Unlike the culture surrounding NASA and Apollo, echoes of this era still animate Russian space culture and most cosmonauts are said to acknowledge the inspiration of avant-garde art and cosmism.

Science Museum space curator Doug Millard worked with two contemporary art curators to build this blockbuster exhibition. They have clearly worked hard to reverse the popular notion that space history is exclusively about NASA and Apollo and this exhibition provides a useful public corrective. However, the only art that could be called contemporary in the actual gallery are the works from the 19th century and the 1920’s. From then on, exhibition design puts any sense of contemporary art into second place. That is, unless if you want to take a relational aesthetics view of this exhibition. Clearly, the objects and the backstories are the most impressive part of this, the first cultural view of Soviet and Russian Space history to be seen in the UK.

Where else would you see Tsiolkovsky’s ear trumpet, Komarov’s glove, a Sputnik –shaped samovar, a ‘to The Cosmos’ tea set , Krikalev’s (the human who has lived longest in space) engraved personal spoon from the MIR space station, Laika’s (the first dog in space) spacesuit ,

pneumatic cosmonaut trousers and, amazingly a solar cell from Sputnik 3? Who knows they had them in 1953? So a remarkable feat of collecting from institutes, museums and private collections from all over Russia.

That's just the knickknacks. The spacecraft are spectacular objects in themselves, even if you didn't know the story behind them, from the never-before exhibited Voshkhod, which transported Valentina Tereshkova, the first woman in space, to the LK vehicle, Russia's human lunar lander, a carefully kept state secret until 1989. When Apollo 11 landed on the Moon in 1969, finally beating the Russians in the space race, they were within an inch of getting there with a single cosmonaut in this vehicle. Although the Soviet Union was already landing on the moon with early robotic spacecraft, (it even, in the early seventies brought back to the Earth some moon rock with an automated vehicle), the ignominy was such that they kept their human efforts under wraps until the breakdown of the USSR. This vehicle, never seen before, exhibited alongside a similar engineering model of the Lunokhod (moon walker, still sitting on the dark side of the moon) is indeed a beautiful, alien artwork in its own right.

The exhibition also is surrounded by other fascinating ephemera, including posters and popular music of the era of Gagarin marking the start of the atheist cult of this small, smiling man in the helmet whose flight on April 12 is still celebrated worldwide each year by space enthusiasts - including artists. Despite losing the race to the moon the Soviet triumph in space continues into the 70's – the first spacewalk by Leonov, the early space stations, continuing into the fascinating era of the MIR space station, forerunner of the International Space Station, the first

human attempt to live in space and possibly the first humanised vision of space, with cosmonauts living day to day in a real-life version of Tarkovsky's *Solaris*. The breakdown of the Soviet Union provided the backdrop of this version of the space race, with the 'last Soviet Citizen' Sergei Krikalev more or less stuck in the Space Station during the attempted coup against Gorbachev. Krikalev, along with, Valentina Tereshkova, was there for the series of opening events, including an interesting talk by Tereshkova, in which she stated she would be prepared to die on Mars.

This era, at the end of the Soviet dream is one that has inspired artists and film-makers such as the Kabakov's and the Romanian Andre Udjica, whose film "Out of the Present" is one of the iconic interpretations of the atmosphere on the MIR station. His film must have surely informed the decision of the organisers to project on the ceiling of this section the slow, tracking shots of the space station which, in Udjica's film, intersperse the human interactions on the station set against the TV footage of the tanks rolling in to besiege the White House and the images of fellow cosmonauts on Earth using unofficial radio ham equipment to reassure their beleaguered colleague. None of that is here, just the tracking shots, presumably available as archive, so we get art as recycled exhibition design. But the backstories around MIR provide a number of inspiration for artists, including the fact that the first ever sculpture in space, 'Cosmic Dancer' by Arthur Woods, floated in MIR for a number of years and is now deep in the ocean along with the other fragments of the de-orbited station.

The backstories are in fact the best thing about this exhibition, along with the flurry of interest in Russian

Space history, including a special exhibition of archive material from the Yuri Gagarin Cosmonaut training Centre at Calvert 22, Soviet Space Archive- Configuration 11 and a special issue of the Calvert Journal entitled Soviet Space Dreams.

The extensive catalogue also includes backstories worthy of study, provided by, among others, the two Russian contemporary art curators, Natalia Sidlina and Julia Tcharfas, and they are interesting cultural documents. Sidlina's fascinating study of the Russian spacesuit (they are still produced to this day by a Soviet-era collective, Zvezda) reveals that after Gagarin's and the other pioneer flights, the Russians thought spaceflight so safe that they stopped wearing spacesuits for takeoff and landing. That was until a descending spacecraft depressurised, killing all the cosmonauts aboard, in one of Russia's rare space accidents (The Americans, with the two shuttle disasters, still hold the worst safety record). The Orlan spacesuit, developed by the collective for Leonov (who became, co-incidentally, a painter like the American Alan Bean) to do the first spacewalk is still the model for modern extra-vehicular attire. I never knew that the words СССР (Cyrilic for USSR) on Gagarin's helmet in the famous shot of him taking off was painted there at the last minute in case the rural population mistook him for a Western spy, descending into the remote Russian countryside, just like the farmers who found the body of "Ivan Ivanovitch" (the generic name for the test mannequins, flown into space instead of humans) who thought they were finding an dead alien.

Julia Tcharfas also writes interestingly about the work of the Russian Institute of Biomedical Problems, another

Soviet-era surviving institution, who in the 60's locked volunteers in what we would now call a space analogue in the experiment 'A Year In Space' to see how they would survive. The well-researched catalogue is evidence that the organisers fully intended to integrate contemporary artists visions into the exhibition. So what happened? Like some of the rumours about the political pressures on the timing of this exhibition, the answer is not clear.

Instead we see a number of contemporary art tropes integrated into the exhibition design, (by Real Studio) such as video screens tilted at angles against the wall and yet another James Turrell appropriation in the end room, framing the quotation "Earth is a Cradle..." and shining down on a cradle with a mannequin ("Ivan Ivanovitch" again) To be fair to Millard and the curators, this mannequin is the actual one flown around the Moon on Zond-7 in 1969 in preparation for the failed Soviet attempt on the Moon in the year of Apollo, but I am sure the cultural significance is lost on the public. Passing into this 'installation' is a standard piece of 80's Russian kitsch, a sentimental painting by Oleg Vokolov 'Sevastianov Family' (1981) of a cosmonaut pondering his destiny on Mars while his distraught wife mopes in the background. Perhaps it is intended to be ironic.

Such missed opportunities, considering this exhibition claimed to be the first to take a cultural view of Soviet and Russian space. The list is endless of contemporary artists who have been inspired by Star City and Baikonur: Jane and Louise Wilson, The Otolith Group, Louise K. Wilson, Andrew Kotting, Black Audio Film Collective (Flow Motion), Stefan Gec and many others from the UK alone. Oleg Kulik, Vadim Fishkin, The Kabakovs, Yuri

Leiderman, Andre Udjica, Dragan Zhivadinov, Marko Peljhan from Russia and Eastern/Central Europe. Laurie Anderson, Bradley Pitts (the first naked performance in weightlessness at Star City) from the USA. I do not understand why the museum would have hired two clearly knowledgeable contemporary art curators (one is now at the Tate) if there had not been an intention to include some work by at least one or two of these artists.

The Science Museum, like its neighbours the V&A and the Natural History Museum, are designed for a massive throughput of visitors including children and tourists and there are always compromises to be made. But, as someone who has worked with contemporary artists in these museums, I do feel they could have done better here. Perhaps Boris Groys points the way when he cites Fedorov, another keystone thinker of the Cosmists: “The museum does not punish the obsolescence of the museum items by removing and destroying them. Thus the museum is fundamentally at odds with progress. Progress consists in replacing old things with new things. The museum, by contrast, is a machine for making things last, making them immortal”. The Science Museum at least does not fail in this respect.

A version of this was published in Art Monthly 2016

A Momentary Cohabitation

Kira O'Reilly meets another species.

I first met Kira O'Reilly under a dead pig. Or rather, encountered, as she was lying silently, naked underneath an un-named porcine carcass in Laura Godfrey Isaacs' 'Home' project in Kennington. The pig had no name, just a number and had been acquired from an abattoir, a place of death, for a performance of an encounter between dead and live flesh. 'inthewrongplacedness' was an intense, one-to-one encounter with the artist. I had not had any warning of what I was going to find behind the closed door in home, separated from the cosy atmosphere of friends drinking wine in Laura's house. There had not yet been the media storm that accompanied the second showing of the work in Tract, in Penzance and the lack of a seedy Soho-style entrance, as there was in Cornwall, left me completely unprepared for the spectacle of Kira coiled with the corpse of a pig. There were many unanswered questions after seeing 'inthewrongplacedness', but for me, as a curator, preparing an exhibition which became known as 'Interspecies', my first question to the artist was: "Why not a live pig".

In retrospect, this would seem to add fuel to the flames caused by media reaction and an unattributed statement from PETA, the animal rights group, as reported by the Daily Mail about the exhibition at Tract: "This seems to be a desperate cry for help that merits visits from mental health counsellors, not voyeurs. As Miss O'Reilly seems to depend on the shock of using a murdered pig as a prop, perhaps lacking the talent to make it as a proper artist, may

we suggest she take up a day job instead to pay the bills. This isn't entertainment - it's sick." ¹

Kira O'Reilly responded with a statement that seems to sum up her interspecies work extremely well:

“This work emerges from research with skin biopsies from newly-dead pigs, cultivating the skin cells in vitro, in preparation to work from a biopsy of my own body's skin. The work left me with an undercurrent of pigginess, unexpected fantasies of mergence and interspecies metamorphoses began to flicker into my consciousness; making fiercely tender and ferocious identifications with the pig as stand in, double, twin, doll, imaginary self.”

So how could one continue to develop this “undercurrent of pigginess”? In my first conversations with Kira, we discussed how a lengthy cohabitation with a live pig could have interesting results in terms of changed consciousness. She was interested in the kind of dreams while sleeping in the same space as a pig. We discussed method of measuring dreams, using lucid dreaming and REM sleep technologies. In the end, we just decided that Kira would live and sleep with a pig whatever it took, and see what happened to her dreams, piggy or not.

But firstly we were faced with some standard art production questions. Where would we find a pig? How could we show the pig and artist in a gallery, in a way that was non-stressful to the animal and safe for the human? It should be mentioned at this point that the context for the exhibition was ‘Interspecies’ ² – an exhibition about artists working with animals organised by the science-art

¹ Daily Mail 8th August 2006

² <http://www.artscatalyst.org/interspecies-manchester>

organisation The Arts Catalyst, where I was curator. It was inspired by the work of the French artist Nicholas Primat, who was at that time one of the few artists in the world working with chimpanzees and other ‘higher’ apes. The exhibition, taking place in the first instance at Cornerhouse, Manchester, also included Ruth Maclennan (hawks), Anthony Hall of the Owl Project (fish), Rachel Mayeri (baboons) and Beatriz Da Costa (pigeons). It was very much influenced by the writings of Donna Haraway - of whom more later.

We started by meeting James McKay, an animal wrangler, who works professionally with animals for TV and advertising. He began by informing us about the Five Freedoms, laying down the principles of welfare for responsible farmers and animal husbandry of different areas. He had his own farm, Honeybank,³ where he kept his animals for hire. He told us a few things we didn’t know about pigs – large ones are dangerous because they might sit on you or in extreme cases try to eat you! We recalled Donna Haraway’s maxim in ‘When Species Meet’⁴ for living in close contact with the wild – “ There is no way to eat and not to kill, no way to eat and not to become with other mortal beings to whom we are accountable, no way to pretend innocence and transcendence or a final peace...” In other words, eat or be eaten.

He was quite realistic about the practicalities, health and safety and ethics about exhibiting an animal in public - that is essentially what it was. There were far more problems with an agricultural animal than a domestic pet, particularly because of the fallout from foot and mouth and BSE (Mad Cow Disease). We even needed extensive documentation

³ <http://www.honeybank.co.uk/honeybank/welcome-to-honeybank>

⁴ When Species Meet, Donna J. Haraway, University of Minnesota Press 2007

from DEFRA to move an agricultural animal, even for the three days we had planned the performance to take place. Ironically, the history of performance art leads one to realise there are far fewer problems in exhibiting a consenting live human than an animal.

We finally decided, for simplicity's sake, to be supplied with an animal by James - Deliah, a small Vietnamese pot-bellied pig, known for their tameness and also sometimes kept as domestic pets.

In the meantime, we had various issues with reassuring the gallery itself that a performance involving a live pig was possible and acceptable to the public. Cornerhouse itself was completely behind the idea but obviously needed to be assured that all the necessary precautions were taken bearing in mind the fact that an animal was going to be living with a human for 48 hours in a public gallery. There was also the added complication that another artist, a well-known vegan and activist from the northeast of England, had got wind of the performance and was posting critical comments on social media, leading to the possibility of demonstrations against the performance and indeed the whole Interspecies concept and exhibition. We ourselves were aware that we were opening up a debate about animals and power. Artists can 'collaborate' with animals but the animals usually have little choice in the matter. Would the exhibiting of a pig with only marginal consent be exploitative of the animal? On the opening day of the exhibition we were indeed geared up for, and ready to address in dialogue, any demonstrators or objectors who might appear.

On the day Deliah was due to arrive in the gallery (Kira had visited her at the farm previously), there was high

drama as the pig had to be literally herded, in the middle of Manchester City Centre, from the van into the gallery elevator. A lot of squealing (and urination) occurred as she ascended to the purpose-built enclosure, lined with straw, where she and Kira were to live. But once in, she seemed quite settled and happy. The artist, clothed in black, rather than naked, was intended to sleep on a shelf above (bearing in mind James' concerns about safety of the human - however the artist reports she spent most of the time sleeping on the floor with Delia). The opening went fine and there were no demonstrations, and Kira and Deliah underwent their 'momentary cohabitation' without any unexpected incidents, except for the moment when Deliah tried to eat Donna Haraway's book 'When Species Meet' which Kira was reading during the performance. In an apposite coincidence Haraway herself was to bite back in an unexpected way.

'Interspecies' was exhibited again in London at the then A Foundation in Rochelle Circus⁵. All the artists from Manchester were exhibiting, with the addition of Snaebornsdottir and Wilson's 'Radio Animal' ⁶, a caravan from which was broadcast stories by members of the public about their encounters with feral nature. They also interviewed Kira for *Antennae*, the *Journal of Nature and Culture*⁷. In the meantime Donna Haraway herself was lecturing at Birkbeck College and, in preparation for *Interspecies* part 2, Kira and I attended the lecture. Haraway herself delivered an extraordinary monologue about animals and power, the nature of the 'wild' the necessity for us to live in close proximity with the animals

⁵ <http://www.artscatalyst.org/interspecies-london>

⁶ <http://www.radioanimal.org/>

⁷ *Antennae* issue 13 Summer 201

we eat and the necessity to eat or be eaten. Speaking with a compelling, complex, yet totally engaging use of language for three hours non-stop without notes, the living legend of feminist and transhumanist theory then astounded us by leading a party to the nearest pub and then standing, pint of beer in hand, meeting and informally engaging all the attendees, one by one. Kira's and my turn came and to our amazement she was already aware of Kira's and Deliah's performance in Manchester and had seen the documentation. We were gently admonished.

It should be remembered here that Haraway clearly laid down here her view of animals and domestication in 'When Species meet' – "The domestication of animals is, within this analysis, a kind of original sin separating human beings from nature, ending in atrocities like the meat-industrial complex of transnational factory farming and the frivolities of pet animals as indulged but unfree fashion accessories in a boundless commodity culture. Or, if not fashion accessories, pets are taken to be living engines for churning out unconditional love—affectional slaves, in short... [T]he human assumes rights in the instrument that the animal never has in "itself.". To be animal is exactly not to be human and vice versa..."

In the basic design of our installation we were committing an original sin, according to Haraway. The human (Kira) gets to sleep on a raised platform above the non-human (Delilah). The architecture shapes the human-animal relations. What we needed was...a ramp. A symbolic ramp, maybe, but one by which Deliah could have access to the human, if she wished.

Kira described the situation in the original version, in a conversation in the 'Radio Animal' caravan. "There was a

platform, but it did not have a ladder. It was low enough that I could get onto it easily but high enough that it could give Deliah a space to be under. The original vision for the work was two bodies lying beside one another on the same level and indeed that was realised much of the time in both versions. The designers had included a platform in the design and I thought it a good idea as it allowed some clear space if Deliah was stressed or unhappy and visually suggested the idea of a bed. What didn't occur to me and what should have, was that a hierarchy was then suggested. This was really counter to what the piece was trying to do. Therefore I was really pleased when this was addressed in the second version by the addition of a ramp that allowed Deliah access to the platform area. Donna Haraway initially suggested the ramp so we called it the Haraway ramp.” (Interview in *Antennae*).

The performance continued, under quite different conditions, with the artist spending three days living in the open, this time, with the pig and to endure some quite cold nights together. An interesting (Harawayian) irony was the close proximity of the kitchen of the St John Canteen ('nose to tail eating'). But the problem now was not the conditions under which Deliah was cohabiting with the human. The problem was, something which we began to notice in Manchester, that Deliah was extremely happy with her new circumstances and did not want to leave at the end.

The end of the performance and indeed the end of the project came as darkness fell over Shoreditch. James and a farmhand came with their van and trailer to take Deliah away forever. As it became clear that Deliah would fight to the death to stay where she was, the quiet aesthetic of the art installation appeared to give way to the casual, brutal,

chaos of the farmyard as, in the darkness, we were all recruited as prison guards of another species, forming a circle to head off the panicking pig. The pig was small, but, enraged, very strong. The sheer physicality of animal handling was overwhelming as the farmhand eventually had to rugby-tackle the struggling Deliah and unceremoniously bundle her into the trailer with an unbelievable cacophony of squealing. Power relations between human and animal were never so clearly highlighted as Deliah was driven away, protesting into the night. We were all shocked, shaken, and sobered.

Essay written in 2015 for a forthcoming monograph about Kira O'Reilly to be published by Live Art Development Agency/Intellect Books

Saltwater – A Theory of Thought forms

It's teasing and implausible to see the words: "The 14th Istanbul Biennial has been 'drafted' by Carolyn Christov-Bakargiev" - implying an uncertainty of approach that is either false modesty or doesn't befit the former director of one of the more successful Documentas of recent years. Anyway, I don't think it is true. She seems to have curated the hell out of it. Saltwater reads as a list of personal obsessions, from water management to war, from mathematics to theosophy, spread over this still-booming, diverse and chaotic city that - despite recent setbacks - seems ever more ready to embrace contemporary art.

The thorny issue of what curating means has been exacerbated lately by the wholesale adopting of the word by 'creative' sectors. You can 'curate' a fashion collection, an apartment, an automobile launch, a restaurant menu.

Christov-Bakargiev - who I propose cannot now escape her job description as curator – has bitten back at this trend in a smart way – intuitively curating whatever or whoever she likes in a kind of alchemy, including Armenian choirs, Annie Besant, a dead polar explorer and to some extent the Bosphorus, the massive dividing line and channel between Europe and Asia.

Indeed one of the Biennale's unseen projects, a work by Pierre Huyghe, lies on the seabed of the Marmara Sea. This is an unapologetically site-specific biennial and only the intrepid will see it properly. You won't be hanging around the main museum venue, Istanbul Modern, for long before heading for the relentless ups and downs of the city. Istanbulers must have strong legs (you see them walking up long escalators where the faint-hearted stand) and the art explorer here will feel like a mountain goat after a few days. The central Beyogulu section still takes a lot of walking to get round, but the absolute must-see is the new section on the Princes Islands. The guidebook says that each section "might correspond to a day in your lives".

To return to Christov-Bakargiev's contention that the biennial is 'drafted' - it is true she has gathered a powerful phalanx of 'participants' in her curating, which she has which include, among the ones that are alive (it's useful to have Robert Smithson and Leon Trotsky as your participants) a number of familiar international art figures as well as the novelist and curator of his own fictional museum, The Museum of Innocence, Orhan Pamuk. This led to interesting public conversations, like the one between Griselda Pollock and artist Bracha L. Ettinger, a discussion on aboriginal land rights or the dynamic

programme about politics and activism in the context of Fernando Dora-Garcia's workshop space.

It's always a toss-up whether to go to the preview days or view the exhibition when all the dust has settled and the bugs ironed out. The preview leads to questions of whom exactly the biennial is for. Simon Sheikh, Director of MA Curating at Goldsmiths felt the biennale "is very pleasurable to curators, writers and collectors that visit many such events...but we need to question how this relates to a more general audience, either within Istanbul or in the form of international art tourists, I think that the former is primary, and the latter perhaps only secondary". But of course, if you miss the preview days you miss Theaster Gates himself throwing pots and listening to vintage Atlantic Jazz records in "Three or Four Shades of Blue" – That said, I definitely saw plenty of Istanbulers - albeit well heeled - enthusiastically trudging from site to site on the first public day.

Talking to the artists, I get the sense that Christov-Bakargiev's intuitive form of curating is popular. Many of them were brought in months in advance for intensive site visits to the city and its regions and much of the work has clearly come out of the process of exploration and discussion of sites. For example, on Princes Island, the artist *Adrián Villar Rojas* takes viewers through the evocative ruins of Trotsky's house in exile to a hidden beach to be stunned by a massive series of giant "Chimeras in the sea inorganic and organic...Leaderless they gaze menacingly back at the house, to haunt or reclaim a land". I would challenge the most cynical of viewers not to have their breath taken away by "The Most Beautiful of All Mothers' emerging from the sea.

Again, Francis Alys, as part of his series of projects about children's play in conflict zones, reanimates the ancient city of Anni in Eastern Turkey with a group of Armenian schoolchildren using various bird-imitating devices. In this silent, almost dead, birdless landscape, the children play *cache-cache* – hide-and seek, captured almost momentarily in this haunting black and white film, cheekily taunting the viewer with birdsong where there is none. They are living ghosts of a past of sieges and sacking from the crusades and other relentless waves of invasions in this landscape, also captured well by Wael Shawky's resounding work, *Cabaret Crusades, The Secrets of Karbala*' in an echoing hammam in the Old City, where intrigues, beheadings, torture and yet more siege and sacking are powerfully portrayed by his trademark glass marionette depictions of Byzantine history and booming soundtrack of tales of victory and defeat.

The notion of seeking out oases of optimism in conflict-torn situations is amplified by the waves of refugees leaving Syria and no doubt passing through this city somewhere, on the way to Europe. That week, social media was flooded with the tragic image of a drowned small child, Aylan Kurdi, another victim of the people-smugglers and global political forces. The introductory quote by Vita Sackville-West was apposite: "Small pleasures must connect great tragedies. Therefore of gardens in the midst of war I boldly tell."

This is certainly the case with the work of Bracha L. Ettinger whose psychoanalytical paintings, some of whom appear to be derived from photographs of Nazi deportations, pose the question of art as a 'transport-

station of trauma'. Likewise the work of Fernando Garcia-Dory, in his work bringing together people from the countryside and the city in a social sculpture in the 'Cezayir' or 'Desire' building is another oasis in the midst of conflict.

In contrast, the group exhibition in the basement of Istanbul Modern seems abstracted, fractured and somewhat contrived, with nods to the museum/collector world in the work of Sarkis and Pistoletto, as if a compromise has been negotiated between the museum and the biennial. It is also here that certain objects, like neuroscientist V.S Ramachandran's mirror box experiment, are miraculously transformed into art, in the curatorial alchemy described above.

In her biennial talk writer Adrian Parr quotes Frederick Jameson "It is easier to imagine the end of the world than the end of capitalism". There are a number of artists apocalyptically use enactment and science fiction, such as Anna Boguiguan, who imagines the re-emergence of a boat which disappeared carrying salt in Antarctica in ancient times. In an impressive installation taking up the main hall of the Old Greek School, The Salt Traders depicts a world where the digital era has disappeared, corroded by salt.

In 'Seductive Exacting Realism' by Irena Haiduk, spectators are locked in a dark room for a 30 minute conversation between two artificial voices discussing a shadowy activist organisation based in Belgrade, CANVAS which claims responsibility for triggering uprisings worldwide and whose training methods apparently triggered the uprising against Milosevic in Serbia, the Arab

Spring in Egypt and the 2014 uprising in Ukraine. Hacker collective Anonymous and Wikileaks have both claimed communication between CANVAS and the private intelligence agency Stratfor who provide services to Dow Chemical, Lockheed Martin and Raytheon. Viewers emerge from the darkness confused slightly confused as to the artist's position and strategy asking: "is activist art a tool for regime change and for whom?"

What happens after the fall of the Artists Republic in 2084? One begins to feel that the 'relentless pursuit of transforming life into art' has indeed become a political reality after 3 days in this biennial. The answer is that we become animals, according to this slightly over-clever but fun video, '2084- A Science Fiction show' by Pelin Tan and e-flux founder Anton Vidokle. The most exemplary of the science-fiction based videos is Ed Atkins, showing in a decayed mansion on Princes Island. The powerful 'Hisser' is about the last 30 minutes of someone's life, but could equally as well be the first 30 minutes of someone's death. It is a kind of hi-tech version of the Tibetan Book of the Dead, with the central figure being transported into various types of virtual hell. Exiting the house, one is transported into a kind of heaven on the island, walking along the calm streets of wooden houses as electric vehicles whizz past (cars and motorbikes are forbidden on this island) to William Kentridge's silent erotic comedy of manners between Trotsky and his secretary.

In all, this is the biennial we expected from this curator, with its quirky psychoanalytic explorations blended with geopolitical issues. It's worth a visit.

A version of this was published in Art Monthly 2016

The Full Take - Musings on Transmediale 15 and 16

It was exactly one year after Edward Snowden made his revelations that a group of artists, digital activists, journalists and even one retired British military attaché set off on a historical bus tour of Berlin's secret installations in an event called the Magical Secrecy Tour, organised by the Transmediale Festival. Berlin is the refuge of many whistleblowers and sees itself, according to Transmediale's director, Kristoffer Gansing, as the 'capital of resistance to mass surveillance.' It is certainly necessary to take into consideration Laura Poitras's compelling fly-on-the-wall documentary 'Citizen Four' before considering whether this is true, given journalist Glen Greenwald's term describing the revelation that we are all subject to the 'Full Take' –the concept that mass data collection and analysis of all our movements is a given.

Bearing in mind the large number of listening stations in Berlin, it might be said that Berlin could be seen by the powers-that-be a convenient place to keep 'digital dissidents' under close view in their own user-friendly playground. But who are these powers-that-be? The big multinational digital corporations such as Apple, Google, Microsoft and Facebook protested loudly when Snowden revealed that the NSA was tapping directly into their feeds, harvesting vast amounts of data for future use, illegally in the United States but legally via the UK's own GCHQ. At several panels in Transmediale it was pointed out that the collection of data is an economic, as well as political or security, issue. So - it was asked by several delegates at the conference - why should corporations protest when nation-states gather the same information as they are hoarding and

carefully sifting for the purposes of profit? Furthermore a live feed of, for example, high- frequency trading, would be an interesting asset. As I write, the British army is recruiting ‘Facebook warriors’ -the 77th division – to bring social media to the battleground, to penetrate the ‘darknet’ and seek out the naughty squad (terrorism, drugs, armaments, child porn) as well as fighting the propagandists of the Islamic State and others. As artist Jordan Crandall said in the conference “Technologies of convenience become technologies of attack”

But what about those of us who don’t want to deal drugs or buy and sell armaments but just want to post videos of our cats? When do we get our share of the profits from our data?

Wages for Facebook was a campaign that went viral last year, based on the 70’s feminist campaign, Wages for Housework, adapted from Silvia Federici’s 1974 essay of that title. Founder Laurel Ptak was at the conference, expressing her surprise that her manifesto containing phrases like: “They say it’s friendship – we say it’s unwaged work” and “they call it sharing- we call it stealing” caught the spirit of the decade. In fact her protest turns out to be more complex. Echoing Federici, she goes on to say: “In fact to demand wages for Facebook does not mean to say that if we are paid we will continue to do it. It means precisely the opposite...(it) is the first step towards refusing to do it, because the demand for a wage makes our work visible, which is the most indispensable condition to struggle against it.”

A number of artists in the exhibition continue this theme of trying to control their own datafication, notably Art Is

Open Source in Stakhanov, in which they have created their own data-god followed by a global data religion, Jennifer Lyn Morone, who has patented her own personality in an attempt to capture the income from her social media choices and Heather Dewey Hageborg who has developed the 'first ever tactical kit for your protection against emerging threats to biological privacy'. This last is particularly relevant as scientists are talking about DNA itself being a potential new source of information storage. The strategies in the exhibition seem to be the classical re-appropriation strategies seen in art every decade or so and as such contain an element of *déjà vu*, reminding me of the work of , for example, General Idea. However the context is continuously changing and as this process matures, the strategies can become increasingly bold and inventive. Take for example the 'Robin Hood Minor Asset Management Fund', a new hedge fund initiated by artists and activists and apparently doing very nicely, thank you. This was one example given by theorist Tiziana Terranova who spoke evocatively at the conference about this new ecology of 'multitudes of non-human agencies and components'.

In his opening address, again arguing for Transmediale and Berlin as a safe haven, Kristoffer Gansing spoke of the 'never-ending loop of datafication' which can only be allayed by blind spots of resistance. One such blind spot which particularly interested me was a screening and discussion by artist Nadav Assam about his work with Jake Wells of 'FleshPilot' who is both a professional tattooist, DIY drone builder and possibly the world's first 'RC' - remote control Christian minister in 'Lessons on Leaving Your Body'. Wells is immobile, sitting on a rock, in a prayer pose, staring at his own image, while his drone circles him sending a remote 'drone selfie'. 'You're flying

that flesh – your soul is in a different place’. He has developed his own theology – “Like the Father and Son...it turns where I tell it. I don’t have to deal with evil and disorientation”. You see him constructing his own DIY quadcopter while reflecting on his life as a near-suicidal homeless person. Technology as redemption.

Over at Club Transmediale, there is a mirror-image festival (it used to be the music fringe to Transmediale but has morphed into a festival in its own right - ‘Untuned’ complete with exhibition) which is focused on direct mediation between digital technology and the body, among other things. Mexican artist Leslie Garcia has convened a music-makers hacklab -an ambitious maker-fest which ends up with the first performance (at least the first I have seen) by an unborn baby, by Theresa Schubert, the mother and Marco Donnarumma, the father, in which the mother and child are wired up to ultrasound equipment and the heartbeat and the kicks of the baby are mixed live to the audience. Here, biological privacy is voluntarily relinquished, although it will be interesting to hear the views of the future artist when he/she is able to comment. The full take, before you are born.

Transmediale is something of a closed-loop system, where endless data capture and gamification is turned back on itself, and where digital labour is both critiqued and revelled in. The flickering spasms of Teching Hseih’s Punch Clock (part of FACT Liverpool’s touring show, Time and Motion) a performance work made in 1980-81 - long before we were all tagged with phones and tablets - actually forms an apt motif for the digital and social overload that ‘Capture All’, the theme for this year’s Transmediale represents. The festival itself feels like a

forced digital labour camp, with tablet-wielding masses struggling to keep up with the themes who are either fighting or giving into the 'full scan' of our relationship to the ubiquitous collection and surveillance of personal data.

LaTurbo Avedon is the first 'artist avatar' to take part in the exhibition, while Tobias Revell in his fictional British council estate, Galtham where tenants have to perform digital labour for food and drink, would make her enter through the 'poor door' – at the entrance to their estate, now transformed in to 'Galtham Desert Heaven' . The first thing you see is a sign: "Non Domiciles Only – Avatars use Entrance A". Fighting back are Erica Scourti, (www.ericascourti.com) whose flashing iphones scans of her own body with ads that commodify women herald a "single player game between lovers (which) turns skins into readable interfaces full of the potential for miscommunication" Jennifer Lyn Morone tm inc. (<http://jenniferlynmorone.com/>) who has tried to patent her own body as a 'humanoid/corporate hybrid, in protest as use of her personal data by corporations and Heather Dewey-Hageborg (www.deweyhagborg.com) who in 'Invisible' gives our DNA a tool for 'bionymity'. The opposite is proposed by the 'Stakanov' group who have set up a global data religion, whose 'data-god' , in a 'playful neo-religious invasion of privacy' spews out thousands of predictive printouts of captured social media outputs about Transmediale itself.

The whole exhibition is framed by metal protective fencing of the type ubiquitous in cities where landscape is constantly been changed massive building projects. The Berlin Group Raumlabor are responsible for herding us through this maze. As usual there is an excellent screening

programme. Notable is ‘Lessons on Leaving your Body’ by Nadav Assor, about Jake Wells of www.fleshpilot.com who is both a professional tattooist, DIY drone builder and possibly the world’s first (RC) remote control Christian minister. While observing himself through a live video feed attached to his drone in a forest he reflects on the connection between religion, drone technology and his own personal struggles. There is also (I haven’t had a chance to see it yet) ‘Labour in a Single Shot’ by Antje Ehmann and Harun Farocki, who died this year. Farocki was the man who had something to say about forced digital labour and he is sorely missed.

The conference part of Transmediale is both dominated and illustrated by the debate on digital labour. I am sure I heard someone say ‘Wages for Facebook!’ in a parody of the ‘70’s feminist slogan ‘Wages for Housework’ Meanwhile, Ruth Catlow, with Furtherfield’s community-created games have converted me, belatedly to gamification. Click [here](#) to see how to play ‘Grab the Cash’ You are an evil London property speculator. Your first task to reach level one: to kill community spirit!

It is not unknown for academics to reference popular culture in their keynotes, but the lyrics and the themes of the new Beyonce video ‘Formation’, surveillance, police violence and climate change seemed to particularly resound throughout the closing keynote, by artist Hito Steyerl (representing Germany in the last Venice Biennale) and academic Nicolas Mirzoeff. It summed up all the modern ‘anxieties’ covered by the Transmediale ‘Conversation Piece’ from drone strikes, random infrastructural violence

via climate racism and Katrina, as illustrated in the Beyonce video made for the Superbowl. Steyerl cleverly undermined any illusion of modern remote warfare being at all rational by quoting from the Snowden files of a secret operative's desperation on viewing the 'sea of data' from the internet and the subsequent 'apophenia' (seeing faces and patterns in things that are not there) that perhaps caused the recent terrible episode of the home of an entirely innocent civilian family being wiped out by a drone strike while watching the news on TV in Gaza.

'If the surface of Miku's body is comparable to visible and public collective desire, could it be that we find the dark web beyond the layers of her skirt?' Well perhaps. A lot of noise and hype surrounded the performance by the first collaboratively constructed cyber celebrity, Hatsune Miku in Transmediale and CTM's collaboration 'Still Be Here'. Maybe it was because I arrived at the performance directly from the CTM appearance of the extraordinary 80-something sound artist, Pauline Oliveros, who casually strapped on an accordion and proceeded to amaze an audience collectively a quarter of her age (she was also the first artist to bounce signals off the moon, in the 60's) I was distinctly underwhelmed by the holographic performance of Miku, singing about 'McLuhan Angelism', academic jargon mixed with cute slogans like 'Alone Is Fun'. Conceived by artist Mari Matsutoya, 'Still be here' presents Miku as 'the crystallisation of collective desires' in which the 'audience comes to the uncanny realization that Miku is simply an empty vessel onto which we project our own fantasies'. Well yes, but I am not sure I needed to sit through this lengthy conceit to find this out.

The one thing Berlin does really well is noise music and we

were not disappointed at the last performance of the festival by The Anarchivists, with legendary Einsturzende Newbaten members FM Einheit and Andrew Unruh hitting objects violently, smashing things up generally overlaid with 'original sounds from the May First festivities in Kreuzberg and the clattering of Heiner Muller's typewriter in his flat in East Berlin'. Berlin post-RAF, old school yes, but direct from the heartbeat of what is still the the most energised city, in terms of music and art, in Europe.

Extracts from articles in 'thisistomorrow.info and Art Monthly UK 2016

An Empty Chair on the Varsity Line

Marples Must Go! This graffitti remained on a bridge on the concrete strip of the M1, snaking through Bedfordshire to the North, Britain's first fast highway or 'motorway' so quaintly named in the 50's, for decades after Macmillan's minister of transport had left office. I always noticed it as a young hitchhiker and it remains as a cultural memory among many, though no images exist of it as far as I know. Marples went, but not until after he had commissioned one Dr Richard Beeching to decimate Britains railways, including the 'Varsity Line' which intersected the M1, running conveniently from Oxford to Cambridge. Now those aristos and tweedy academics would have to pilot their Rollers and Morris Minors along roads built and financed and concreted by none other than the family firm, Marples Ridgeway, builder of the M1 extension and the Hammersmith Flyover. The closure of the Varsity line was not, in fact an immediate casualty of the 'Beeching Axe', but this knock-on effect of large scale closures led to the gradual degradation of other branch lines and lines that did

not pass through London by neglect, ushering in the age of concrete and the car, leading to Thatcher's dark psychogeography of the M25. As for Marples, the concrete magnate and former Minister of Transport ended his days as a tax exile in Monaco. Sounds familiar?

The M1 is also dissected by - points out artist, curator, all-round psychogeographer and activist of the inner life, Sally Annett - the route of Bunyan's Pilgrim's Progress. Including the Slough of Despond, an adequate metaphor for the corruption surrounding the replacement of Britain's extraordinarily complex rail system with the current mire of road traffic: "This miry Slough is such a place as cannot be mended; it is the descent whither the scum and filth that attends conviction for sin doth continually run, and therefore is it called the Slough of Despond: for still as the sinner is awakened about his lost condition, there ariseth in his soul many fears, and doubts, and discouraging apprehensions, which all of them get together, and settle in this place; and this is the reason of the badness of this ground." 'Carriageway Widening Works' in another age. There are even more appropriate landmarks in 'Bunyan Country', notes Annett, including the Hill of Difficulty, the Vale of the Shadow of Death and the Celestial City, some of which can be visited on the remaining part of the Varsity Line, the Marston Vale Line. On this small line, reactivated by the influx of workers to the contemporary Dark Satanic Mill, the giant Amazon warehouse facility in Ridgmont, we see some of the classic symbols of rail depredation, aimed to make one think again about taking the train such as unstaffed brutalist 'bus stop' stations, stripped of any architecture or shelter that may make the passenger comfortable while waiting for the train that may, or may not, turn up. Annett has responded to

this state of affairs, including at her own home ‘station stop’ as they are now absurdly announced, by creating a number of ‘Contemplation Chairs’ which she is strategically placing along stations of the Marston Vale line.

Sally Annett, in her ‘Snakes and Ladders’ project has previously broken new ground in conducting large-scale investigations of the ‘inner voices’ of artists and scientists, probing at their religious, anti-religious, philosophical and psychological backgrounds, to find out what they may all have in common in terms of notions of the self and processes of meta-awareness. In ‘Where Will Your Journey of Contemplation Begin’ she has initiated an unusual public art project which puts a new slant on the notion of ‘waiting for the train’ by strategically placing different types and design of chairs in a guerilla fashion in places where there is no seating. But they are not just functional. Annett describes the chairs as a way for the public “ to see familiar environments in a reflective and self-reflective way, through the written word and archetypal symbol of a chair or seat. The work uses the human body as a vehicle or mediator for consciousness and tries to develop methods of creating time and space for thought. They encourage a dialogue with a ‘still small voice’”.

The chair is an important symbol in contemporary art and stands as a powerful metaphor for human presence. A well-known example is Ai Wei Wei’s ‘Fairytale’ project in 2007, where he brought 1001 chairs from the Ming and Quing dynasty to Documenta 12 in Kassel. He also arranged for 1001 Chinese citizens to accompany them, who responded to an announcement in his blog, who had to answer 99 questions, including one about their dreams and who then inhabited the town of Kassel en masse in

what Ai Wei Wei described as an ‘Eastern Wave’ along with the chairs. Another significant ‘chair’ work, which I was involved in curating was Simon Faithfull’s ‘Escape Vehicle No 9 (2004) which took place at the first Artists Airshow at Farnborough, organised by The Arts Catalyst, where a life-size replica of a chair was launched to the edge of space. Faithfull described the flight of his chair as “first rushing away from the fields and roads, ascending through clouds and finally (against the curvature of the earth and the blackness of space) beginning to disintegrate... the empty chair invites the audience to imagine taking a journey to an uninhabitable realm where it is impossible to breathe...” Annett eventually hope to be able to install her Contemplation Chairs permanently on the stations but for now they will appear occasionally and provocatively as ‘ghost chairs’ on the empty platforms.

Riding the line between Bedford and Bletchley is a jolly affair, a friendly 2 -man train taking schoolkids, elderly shoppers and others who for whatever reason don’t use cars. However it is laced with uncertainty. On the day I first tried to use it, the electronic signal board announced enigmatically “This Train has been cancelled because because of a Train” only as an afterthought adding the word “fault”. But once on, the train affords some interesting views of the post-industrial landscapes, with their gravel pits and abandoned brickworks. My previous experience of Bedfordshire has always been of the inner-city prejudiced variety, ie “get through it as quickly as possible to get to a real place”. We have now been taught by the likes of Ian Sinclair to value these apparently liminal non-spaces in the English hinterlands. Sally Annett, who lives here, is no exception, talking eloquently of the history of brick-building, local myths and of course Bunyan’s

Pilgrim's Progress which which she is artistically obsessed, pointing out the landmarks on the Icknield way and little corners of the landscape that are reflected in the life of the dissident evangelist who lived and worked here.

With Annett I have actually climbed the Hill of Difficulty and entered the actual Slough of Despond. I am not sure if I have seen the Celestial City, unless that is Bletchley Park, with its rebuilt Colossus and Enigma Machines, the ghosts of Alan Turing and his mainly female human 'computers', at the end of the line, boffins travelling there by rail in each direction from Oxford and Cambridge on the Varsity Line. Moreover, at the edge of the Slough of Despond there is Light at the end of the Tunnel, to stretch a metaphor till it squeaks. The East-West Rail Consortium project has been funded and is aiming to re-open the Varsity line, at least from Bedford to Oxford again by 2017 (the Cambridge section has been built over), hence the support for accompanying public art projects like Sally Annett's Contemplation Chairs.

It is always difficult to do art projects that engage with large-scale infrastructure like railways, without becoming illustrative and decorative additions to the travelling environment. Somehow health and safety issues and anxieties about public perception always become magnified around trains and those who operate them. Sally Annett's simple statement of a chair on a platform should be seen as a straightforward but evocative gesture, suggesting waiting and a sense of personal time as part of a unique individual journey. I hope they will appear.

Commissioned as an accompanying essay for 'Contemplation Chairs' by artist Sally Annett, a project for the Varsity Line, Bedfordshire.

Interview with Anne Bean

Why are you called Anne Bean?

In some way Chana Dubinski, the name I used and had intended to carry on using when I left London a few years ago for what became the Transpective project, came before Anne Bean. It's that old story of emigrants arriving somewhere and having their identity reshaped for them.

Where did Bean come from?

It's lost in the mists. My uncle thought it was given at immigration. They were probably saying Du-Bean-Ski. My family arrived in England from Russia. This name always had a mythology to me. When I went to Hebrew school as a small child Chana was my Hebrew name. So I always had this Chana Dubinski feeling alongside Anne Bean and it felt very much like Anne Bean was like a symbol name, a Wittgenstein demystification of what a word is.

So she didn't come from nowhere. So when I'm talking to you now who am I talking to?

You are speaking to a human being who happens to be called Anne Bean, it's convenient basically. I don't want to get mystical about it but we do get tied to our material selves too forcefully. It makes very little difference in terms of mortality or immortality if this name Anne Bean lives in any way, **just the energies I've forged**. Fundamentally I lived happily only calling myself Chana Dubinski for a couple of years and now I'm happy that I am called Anne Bean.

When do you consider you made your first work of art? Would it have been in Africa, where you spent your childhood, or Reading where you studied art?

I painted from when I was very young, taking over a part of our garage to use as a 'studio' when I was about 10. I recognise, looking from my current perspective, that these paintings are equally part of my 'art' trajectory as are many transformative 'life' moments from that time. For instance, I read the autobiography of the deaf/blind American author /activist Helen Keller at around that age and was deeply impacted by her describing her first recognition of language when

W-A-T-E-R was written on her hand with water. She spoke of exhilaration as objects suddenly 'quivered with life.'

Attempting to get into her consciousness was powerful.

Late one night I switched off the lights in our bathroom and wrote many words on my hand with cold water. In the darkness and silence I experienced that sense of some primal connectivity outside of hearing and seeing and way beyond the darkness of our bathroom-- an expanded reading of the universe.

Any other memories from this time?

I spent much of my childhood with black Africans **in Zambia** and I appreciate more and more this very different space/time and viewpoint that this connection gifted me. I was a foundation student in the Fine Art Department of Cape Town University in the late 60's, where the obviously completely malignant political/social environment made it meaningless to be drawing skulls, fruit and flowers, however sensitively.

How did you respond to the situation of apartheid?

I had never heard of performance art but I made an action that I thought of as a visual protest sitting on a Whites-only bench with painted black palms of my hands displayed outwards. I see my work as an ongoing work in progress where these life/art moments are as strong a part of the whole as recognisable physical 'capturings.'

Would you say the the Moodies, which you started in the early 70's, which was featured in the Sunday Times Magazine in 1974, was the first genuine artists' band?

I don't believe in 'firsts' -- I think there is a shared zeitgeist that we give and take from-- we certainly received a huge amount of attention at the time and I was delighted that we could work in many contexts from art galleries, Dingwalls and other clubs and theatres to doing a Spare Rib benefit, whilst being called "An insolent spangled harem" by the Financial Times. The name of the group was actually Moody and the Menstruators, starting in 1971 at an art department party. I had aimed as Anne Archy for a harsher, more raw feel -- white blood-stained pants.

Are people aware of the Moodies now?

Strangely, at the very moment I am answering this, a film is being shown in NY of the Moodies with this quote on the invite by Michael Bracewell "like performance art test pilots - the principal strands of British art rock, 'avant-cocktail' pose groups, punk and post-punk. Referencing the artistic/ musical cabarets of the Dadaists and Futurists, the group take their place on a musical timeline somewhere

between the Bonzo Dog Doo-Dah Band and The Sex Pistols."

Who were the members and where are they now?

Rod Melvin continues to play piano and compose and has collaborated with Brian Eno, Lindsay Kemp, Ian Drury and Richard O'Brien amongst many, Annie Sloan runs the international company, Annie Sloan Interiors in Oxford, Polly Eltes became a world renowned model, sung with Can and is now a photographer, Mary Anne Holliday and Suzy Adderley continue their art practice within an activism mind-set.

Hermine Demoriane, who sometimes performed alongside the Moodies walking the tightrope, is still making performances.

With reference to the 1982 performance Two Peas and a Bean, a very powerful event which involved yourself, the late Paul Burwell and the American artist Paul McCarthy partially demolishing an abandoned house in the East End, with the audience standing inside it, you referred in our conversation to the notion of the 'audience as battery'. Could you expand on this t?

'The audience as battery' was a general feeling that I had in relation to performance at the time of 'plugging in' to the energy of a situation and riding it. I have always felt that the 'between-space,' offered by collaboration, an activation and sparking of possible selves, was permissive, liberating and often electrifying and the audience was a furthering element in this collaborative situation.

How did it come about?

I had met Paul McCarthy in Los Angeles in the late 70's and when he and Linda Burnham (founder of High Performance magazine) approached Paul Burwell and myself for him to do a London performance, Paul Burwell and I contacted several galleries and organisations and no-one was interested. We decided to use the derelict house next door to us in Bow, in which we would each take a room as our own but find ways physically and metaphysically to come together. I broke through the floor and ceiling above Paul Burwell's drum-kit showering debris and enormous glass ball lights over his drum kit, making thunderous sounds until he erected an umbrella, as a machete came flying through. I pushed a tube into the room and sung through it into the space and then entered the room from above, played his drums whilst he climbed a ladder and broke through the glass windows into Paul McCarthy's space, who then ran into the room that I had abandoned to spray it in ketchup.

It felt like a pretty risky situation to me

The audience inevitably were caught up in the mayhem, running for cover, not knowing which way to go, what to see, what floor would give way, what glass would fly, what staircase was safe. We all - both performers and audience - genuinely had to have our wits honed and alert and, seemingly antithetically, this is often the safest as well as most enlivening situation we can be in on our planet.

So, in Two Ps and a Bean there was a palpable sense of danger. In the Bow Gamelan Ensemble there was almost a replicable, but unpredictable sense of danger. There were lyrical parts, sure, but I

think there were also moments where we were reminded of the hazardous moments experienced during performances by the late Steve Cripps. Was this deliberate or random?

Three images flashed immediately into my head: A performance in late 70's with Paul Burwell and Stephen Cripps where I put record players with Paul and my single, Low Flying Aircraft, on bunsen-burners melting and distorting sounds, whilst Stephen set-off exploding cymbals and Paul drummed flaming paraffin. With Richard Wilson and Paul, 1978, drumming on a boat under Tower Bridge, playing the echoes, whilst I swam with flashing torches, shouting into the abyss, getting swept under cross-currents. Paul and I on Bankside, well before it was even a glimmer in Tate's eyes, shooting vast pyrotechnics up and around the chimney. And many more deliberately random actions...

How did you reach the idea that you would follow the line of the UK total solar eclipse of 1999 in three boats full of artists and young people from Tower Hamlets, with cosmologist Marcus Chown and the art-science organisation The Arts Catalyst?

I heard Marcus Chown, the cosmology consultant for New Scientist magazine, talking about his book 'Afterglow of Creation', on the radio in mid-nineties. He explained how the detection of cosmic radiation, was identified as the afterglow of the big bang. I was fascinated when he said that any body, at any temperature above absolute zero, emits radio waves. I had been looking into thermal imaging at the time with a new technologies fund, the ICA Toshiba award, on a work called Radiant Fields. When I met up with Marcus, he was fired up with the upcoming total solar eclipse and all the observations, scientific and otherwise,

that could be made during that. It stimulated my imagination and I realised that it could be a trigger for many different minds and approaches. Marcus felt that the optimum positioning for us would be from boats in the English Channel.

Who took part?

I went on to invite around 30 very varied people on a voyage together to chase that shadow, with artists including Tomoko Takahashi, David Cunningham, Judith Goddard, Hayley Newman, scientists and teenagers from Tower Hamlets Summer University and from the Royal National Institute for the Blind's New College in Worcester. I asked everyone to make a one-minute film of their experience which became 'Seclipse- Sharing a Shadow'. It inspired many later works of mine including a drawing called Eclipse 2004/5, that I made over a one-year period of the sun casting a shadow of a globe of the world whilst I drew around this moving shadow. I had worked with shadows from very early on, including in Belgium, 1972, making a moving bicycle shadow drawing, when Genesis P -Orridge, Cosey Fanni Tutti, Robin Klassnik, the Kipper Kids and myself made works together and separately.

So you lived as Chana Dubinski as an art project. How were you able to live as another person for a year and a half? What was the setup? What were the rules?

I didn't see myself as another person or an alter-ego or any of those terms or even see it as an art project. I saw myself manifesting much more of the being that I intimately recognised, away from the 'shape' that life, friends and oneself holds one in. I was thinking about where art was

going and if I can carry on with performance – how do you break through the boundaries -- make a piece where you are not sure whether this is life or not life. I was thinking about people who told me they had been believers but had lost their faith. Some spoke of how the tenets of their religious life shifted into simply living a loving life, which felt much more attuned and fulfilling. I was thinking about this in terms of art, as a sort of a-artist as opposed to a-theist. I was also thinking about the fact you make agreements with art and with the sort of person and artist you are when you're very young, so you could be hijacked for a life-sentence by your much younger self.

At the time, I wrote this text: “The more provocative and stimulating position is not that ‘everyone is an artist’ but ‘no-one is an artist’ and that the ‘art’ space is implicitly part of living. This undefined, open, permissive exploration that art claims then becomes part of the everyday. Art and life lose the disjuncture by declaring oneself an a-artist. Too many art end-games have played out for over a century and there now has to be a real shift.”

Take me into that moment when you arrived in Newark and you were Chana.

I left with a suitcase, I left with a name. I decided I must not stay in a hotel or a bed and breakfast. I must live as cheaply as possible and the whole thing must be led by chance. So I had no idea where I was going except I wanted to be in the North, in England, I didn't want any problems with language, and I wanted to feel some kind of knowing unknowing. It would be enough difference to just give some frisson but not to adapt to a whole new culture.

Did you choose Newark for a reason?

Very much for a reason. I set off by bus from Norfolk and I actually spent 3 months peripatetically. Before I set off, a friend of mine gave me a little gold charm from his late mother, which was a Hebrew letter which means 'life'. Although I didn't know his mother I felt very close to some presence. I stopped in Newark, a town I didn't know at all and was buying a baked potato in the marketplace. I took out money to pay and this little amulet dropped into a guttering. It was such a shock to me. I felt like some crack in the universe had opened... an unravelling of some kabbalistic tryst.

You'd been carrying this amulet for 3 months?

For 3 months, and travelling all over and somehow I felt a real sense of belonging and duty, responsibility.

So that's how you got to Newark?

Dropping it. I got hold of the council, we tried to open the gutter. I decided the only way to stay close to this amulet was by staying there.

So there was no other reason you should end up there?

None whatsoever. But it's lovely that Newark means 'New Work'. I must say the first morning of the project I woke up and really thought "I'm going completely crazy" It was really like a blank. I did have, for the first time since being an adolescent, an overwhelming existential weirdness. I mean I wanted it but at the same time it's a bit like when you take drugs and suddenly realise you don't want this to be happening and you know there is nothing to be done.

Was there an escape clause?

No, and I knew that. And I'm very wilful. I couldn't. There was nothing.

Was there a de-escape clause? Could you have carried on forever?

I didn't think about it before but I certainly thought about it during. Certainly subsequently when I realised my Anne Bean life was so punctured and so perceptively different. The other was more real for me at that moment.

Practically, did you have to have different bank accounts and so on?

It's extremely difficult. I had to have a letter written by someone who knew me as Anne Bean to rent a flat. I have a cheque for a creative writing prize for Chana Dubinski, which I have never been able to cash. I think I could have found a strategy of legitimising Chana, as I became more known.

Did anyone suspect what you were doing?

Strangely enough, this woman who led a creative writing group that I was in (I joined a lot of societies,) gave us a project to have a pen and paper by our bed and write when we woke up. When I read out my text she was obviously perplexed, even suspicious. Maybe she thought I was some kind of journalist.

I am surprised not more people did.

Many people were puzzled, curious, but with this woman, whom I had befriended, it was the first time I got this sense of betrayal. She was pondering a situation she could not fathom, I suppose because my writing was raw and confrontational, maybe frightening, possibly embarrassing and she wasn't sure how to deal with it

Had you thought through the moral and ethical limits in this?

I thought I'm not going to get close enough to people to let that become problematic but I did. But then the disintegration happened when I got back to London. There was a real crunch time of where am I? What am I? I was in a twilight zone.

How did you leave?

I put on an exhibition *A Transpective* in the cottage where I lived, and there was an odd private view of parallel tracks reaching the vanishing point, with some people calling me Anne, some Chana. My previous life had disintegrated. At that point I thought I didn't want to become an art sacrificial lamb.

So Anne Bean came back?

Yes, although the Newark situation had inspired a further idea of collaborations with strangers.

Trowbridge was picked out of a hat at a ceremony organised by you at the former Matts Gallery. How did that town react to being picked at random for a site of a contemporary art space?

On the evening of Chinese New Year, 2014, I placed the names of 80 small towns in England in fortune cookies and Robin Klassnik pulled out Trowbridge. I instantly left the gallery at that point to drive to Trowbridge and find a space to be called MoCa (Moments of Consciousness and...)

How did you go about selecting the work?

I initially wanted to collaborate with a 'stranger' from the town towards an exhibition. I invited the first completely unknown local person that entered the Trowbridge space to do a work with me as part of '5 duets with strangers' which I will do as part of 'Tempting Failure', an event in July in London. The other ongoing strand in Trowbridge is varied installations in the window. During November I worked with a couple of local women on an installation in the space relating to a film I had made called Redress, an ongoing work over 12 years. I made actions with women, in countries of conflict, including Iraq and collaborated closely with PAVES, a group of 5 women I brought together from these countries. Trowbridge has a problem with ex-army displaced people struggling with civilian life and I have spoken to many of these men on the street. The Redress installation ran for a month over Dec/Jan, viewed through the window with sound coming through the airbrick vents. At the moment there is an installation, lighting up in the dark called Leaden Man with Swan Thoughts. In Autumn there will be a public event and exhibition in the space with the artist Hugo Danino who has now taken a space in the Trowbridge building, which I had advertised, having heard it was vacant. It will be more obvious at that point and the town will know it has been chosen 'for a site of a contemporary art space,' if only temporarily.

Memory is a tricky issue. How do we redefine the way we tell stories about performances? I remember doing a performance with you in the 80's, as a writer, where I had to review your work live, on a typewriter. But there is no documentation. How do we reconstruct archives where they don't exist?

Yes, it is ironic that the very work instantly reviewed, is now lost in any material documentary sense, even the original type-written 'live review.' You read out the review intermittently during the work and like an improvised dance, the review and performance carried on affecting each other throughout. 'Notes on a Return' (2009) curated by Sophia Hao, revisited this work made at the Laing Art Gallery in the 80's as well as works by Rose English, Mona Hatoum, Bruce McLean and Nigel Rolfe examining ideas of memory, archive and documentation of ephemeral practices, **which I had previously conjured with in my work Autobiuary, Matts Gallery.** In 2009 Tate Archives and Live Art Development Agency awarded me a Legacy Thinker award to probe these very issues. Paul Burwell, a close collaborator since the 70's, died in 2007 and I wanted to find a way for his irrepressible raw spirit, his passionate, participatory and experimental practice to be alive and present. I invited over 80 collaborators, advocates of improvisatory tenets, who had worked with him to contribute to what became TAPS. Paul Burwell wrote in 1976: "The way forward (or if not forward, at least somewhere else) thinking of art as a kind of lateral thinking skill, art as intervention, of approaching the notion of changing the rules, standing things on their head, re-examining the basic tenets of any arena of enquiry or discipline" .We are each others archives and legacies.

This interview first appeared in Art Monthly in 2016 under the title 'Whats In a Name?'

Forming In The Pupil Of An Eye

It is difficult to consider the 3rd Kochi-Muziris Biennale in Kerala, India without the context of the shock overnight demonetisation of the rupee in November by right-wing PM Narendra Modi, leaving millions of ordinary Indians cashless with long lines at non-functioning ATMS for weeks. Also, the amazing distance the Biennale has travelled between its chaotic first edition and the slick and well-marketed and sponsored third edition. Almost the first thing you see when you enter the beautifully shaded Aspinwall Biennale compound is – a working ATM! A masterstroke. It charges 200 rupees for the privilege of not queuing.

Hard marketing and outreach includes stickers “It’s my biennale” on chai stands, 100 art-trained auto-rickshaw drivers (called ‘Arto-rickshaws’) Student Biennale, Childrens Biennale and 21 collateral exhibitions including an ‘outpost’ of Srishti Institute from Bangalore. Demonetisation, while causing untold misery (imagine if 10 and 20 pound or euro notes were suddenly made invalid) has been a boon to this biennale’s image. Winter tourism to Kerala bucketed sharply, many visitors swiftly changed their winter sun destinations to Thailand and Sri Lanka when they realised there was no money to be had. The Biennale has reversed this trend, contemporary art tourists being made of sterner stuff. Kerala’s Tourism Secretary Dr V. Venu said “When Kerala tourism had a crisis on its hands with the demonetisation policy affecting tourist arrivals, the Biennale ...brought money into the hands of the common man and local community.”

Artforum said of the first edition “Barely half installed, the exhibition was a wreck, a treasure hunt with no map

and potentially no treasure either...tilting toward despair in a wincing vision of shipping crates, stalled labor, discarded tools, half-cleared piles of trash and thoroughly despondent artists.” In fairness, as a curator, I think we have all been in that place at some point. The second edition, *Whorled Explorations*, fared much better.

Curator Sudarshan Shetty has covered his bases in this third edition *Forming in the pupil of an eye*, describing it as a ‘hidden river’ in progress and absences would be ‘part of it’. In the event things went pretty well. At press day things were being frantically finished. But by opening day it became a real biennale, with only some absences, notably that of the Scottish artist Charles Avery, whose work had been held up at customs in Bangalore. Apparently the Biennale has a blanket policy of refusing to pay bribes, which caused the delay. A tough call but admirable in context.

So what of the work? Visiting curator Natasha Ginwala, Curator of the Countour Biennale and curatorial adviser to documenta 14 felt the biennale had become more established and extremely lively, being as it was reconfigured by the added voices of literature, poetry and theatre and seriously considering elements not usually addressed by visual art, at the scale of a biennale, such as the vocabulary of song and traditional processes. But she felt that at times there was a disconnect between some pieces and there was not enough intimate connection between the trajectory of artistic work, , the viewer not being led sufficiently by the curator’s mind between installations that were at once materially fragile and diverse.

There were, however a number of devices that at least tried to lead the viewer, from an entire novel stretching across the walls of the city by Sergio Chejfec in *Dissemination of a Novel*, to Abishek Hazra's faux guided tours which invented fantastical back-stories for each work in *Submergent Topologies*. Tracing "new affinities" the walks "parasitically consume the content of another artists practice" and create "slippage between fiction and fact". Through a mobile loudspeaker in semi-military gear Hazra adopts the persona of a crazed pundit or speakers corner visionary as he weaves between different works each day parsing ever more diverse and absurd narratives.

The same function is performed by Lundahl and Seidl's *Symphony of a Missing Room- An Imagined Museum*, continuing throughout the biennale, in which members of the public are apparently led through the exhibits wearing sightless goggles and headphones in pairs. But the event is not all it seems. Either one or both of these pairs is a trained performer masquerading as a guide, using movement techniques to create an immersive experience for the other. In a Biennale which unashamedly draws in literature poetry, music and theatre, it is also pleasurable to see how installations spring into life into performances, like Anamika Haksar's *Composition on Water*, a heady mix of fire, water and performance about the exclusion of the Dalit caste to fresh water and their resulting conversion to Buddhism.

Significant centrepieces include Bob Gransma's enormous hole and chunk of landscape with its archeological layers exposed in *riff off 01#16238* and Ales Steger's *The Pyramid of Exiled Poets* a massive maze-like imaginary tomb. It is

‘populated’ by a polyphonic experimental poem, referencing the pyramid in Khufu, Giza in Egypt.

But the big talking point was AES-F’s lavish *Inverso Mundus* in a spice warehouse and its controversial counterpoint *Défilé* in the main Aspinwall site. In their characteristic sumptuous manufactured imagery, beautiful young actors in high-fashion garb invert the world, the poor give to the rich, women torture men and the garbage collectors rule the world. Although AES-F have spoken against Putin and the New Russia it is clear that a section of the oligarchy love these aging subversives, judging by the amount of sponsorship and resources. I was left with a slight feeling of distaste. But this feeling was counteracted by the audacity of *Defilé* - a simple photo display of slightly startled people, again in high fashion attire, some old, some young, all looking slightly zombified. I read the caption again and realised these were recently dead people photographed shortly after death. How to do this legally – bribes to the mortuary attendant? Artist Vivek Vilasini, who was in the first biennale, himself no stranger to visual trickery, pointed out that the traditions dressing the the dead were not unusual and had these individuals had give their permission and their bodies rearranged and photographed from above, it could have been done. It is an open question whether this controversial depiction of the dead is more or less taboo here in India as opposed to some western cultures.

The other big talking point was Raul Zurita’s *Sea of Pain* in which the viewer had to paddle through an expanse of seawater to read a poem about Galip Kurdi, the brother of Alan Kurdi. After the controversial action by Ai Wei Wei in 2014 where he positioned himself in imitation of the

photograph of the dead boy one may feel artists have said enough here. However this poem was about the 5 year old brother who appeared in no news photographs and the poem was hidden from view unless you walked through the water. The artist positions himself as 'a kind of father' to the dead boy, calling us to immerse ourselves in an almost religious fashion in the 'sea of pain' of the migration crisis. I heard a local member of the public trying to explain to his daughter, who of course was splashing joyfully through the water, what would drive people to leave their homes and risk their lives at sea.

Proof that the biennale is a river of ideas and an unfolding story comes with the numerous concurrent events such as the high-profile TBA2's The Current Convening about the future of the oceans. Featuring luminaries such as Ute Meta Bauer, TJ Demos and Joan Jonas (who also did a breathtaking performance by the ocean about our memories as fish) and the round-the-world sailor turned artist Charles Lim. Organized (and financed) by the active philanthropist and Thyssen-Bornemisza founder Francesca Von Hapsburg who defines her foundation's activities as the 'undisciplined interdisciplinary' and presented in a slick and accessible format, it included many powerful voices from indigenous communities, such as those from the Kiribati Pacific nations, described as 'essential for the life of the planet, and represented by political figures like Lelei Tui Samoa, who asked 'if the US can regulate airspace why could Polynesia regulate seaspace?'. Much reference was made to the new, essential networks of copper cables strung along the ocean to connect the world's economies and Charles Lim described a project to uncover the extensive surveillance by

autonomous submarines of these cables, which apparently get bitten by sharks regularly. Samoa referred, perhaps humourously to the rights of his nation to mine these cables for copper. The next Current Convening will take place in London.

Scotland was strongly visible in this biennale, with good work from Rachel Maclean, Hannah Tuulikki and Charles Avery. From the UK, Nicola Durvasula is spending the biennale collecting objects and setting them to a soundtrack to musician John Tilbury. This strategy was also adopted by Eric Van Leishout, claiming to be making a collaborative movie throughout, undermined by a scribbled note saying the artist would be absent from the day after the opening for two weeks! There is also the Greek-born UK artist Mikael Karikis presenting 'No Fear' about a group of alienated young people on the Isle of Grain which resonates strongly in these days of impending Brexit.

Although the biennale has a generally international flavour, the Asian region is well-represented. An energetic performance from Japanese performance artist Aki Sasamoto jumping from a submerged trampoline, a marching sailor and Pepper's ghost parodying militarism from Wu Tien Chang from Taiwan and a contemporary scroll from Dai Xiang depicting authoritarian brutality. Notable Indian work includes Mansi Bhatt's prosthetic masks, Avinash Veeraragavan's embroidered abandoned playgrounds and Remen Chopra's haunted seascapes with love poems, viewable by one person at a time through a hole facing the ocean.

This is a biennale to be attended throughout its duration, with continuous performances, talks and films in Tony

Joseph's specially designed Pavilion. There is also an extraordinary mobile reading room, based on the collection of Director Bose Krishnamachari. Breathing even more life to this bustling coastal city with its ancient international links, with large, curious local crowds, this biennale proved that art could be indeed brought to the people in these uncertain times.

A shorter version of this appeared in Art Monthly February 2017

Spooky Action

At the dawn of the second quantum revolution, when quantum computers are set to transform our data-driven world it is interesting to consider some artistic interpretations of Einstein's withering riposte: 'Spooky Action At A Distance' in his battle with physicist Niels Bohr over the completeness of quantum mechanics. At the same time, in the light of CERN's once-in-a-lifetime discovery of the Higgs boson it is worth considering that despite being able to detect background radiation from the big bang, astrophysicists are still literally in the dark about 68% of the composition of the universe in the form of dark energy and still know very little about the 27% of dark matter.

At the same time, institutions like CERN, the European and Japanese space agencies and science laboratories around the world are beginning to welcome dialogue with artists, in some cases instigating formal residencies. They will need to accept that artists do not always wish to follow the prescribed formulas. For example Taiwanese artist Yin-Ju Chen actively flirts with pseudoscience and conspiracy theory in her Lemurian explorations in *Interstellar Evaluations*. This would normally get her kicked out of any self-respecting lab. Yet her 'Action At A Distance', directly referencing Einstein's statement, which puts a quantum entanglement type of interpretation on incidents of state violence, invasive medical procedures and other external events ultimately describe a cohesive and interwoven universe, which was not lost on visiting particle physicists and other scientists who visited the first edition of the new exhibition "No Such Thing As Gravity" which investigates artistic interpretations of the limits of science.

In this exhibition I have tried to present a broad range of artists who approach these difficult areas of science while maintaining a dialogue with science professionals such as Professor Tara Shears from CERN and Liverpool University, Professor Chris French of Goldsmiths University and Professor John Hunt of Liverpool University. Alternative theories, backyard science, rogue science, ghosts and unconventional explanations are all explored here - areas that nowadays actually don't scare off intelligent scientists with enquiring minds, we have found - although there will always be a debate. One might perhaps draw the line (if there is a line to be drawn) at lunar landing conspiracy theories or lizard world domination, although

the latter might be a suitably satirical description of current world events.

Artists are also good at playfulness, which scientists can find refreshing after a hard day's data-crunching in the lab. For example Semiconductor's 'Magnetic Movie' in which the Space Sciences Laboratories apparently take on a supernatural, spooky, mad-scientist life of their own late at night shocked some when it first appeared as it appeared so real. It was shown along with their project 'Worlds In the Making' in which using similar techniques, the earth appears to ripple with seismic activity caused by volcanos. Likewise, Agnes Meyer-Brandis's 'Hammer and Feather' experiment appears to replicate David Scott's experiment on the moon in the artists studio. The legendary proof serves the artist as a metaphor for the inscrutability of reality and the obscurity of scientific research methods. It took a sharp-eyed scientist to point out the trick of making the hammer and feather fall at the same time in Earth's gravity at the exhibition's opening.

Equally spooky, but perhaps more in the comfort zone of science are Evelina Domnitch and Dmitry Gelfand's 'Force Field and 'Quantum Lattice' where the artists actually manifest quantum entanglement behaviour in the gallery investigating the subtle interactions between light, electro-dynamically levitated matter, and gravitational forces. While performative, these works are based on real science experiments and the spooky action can be physically experienced by the public.

Treading the thin line between belief and observed data is Sarah Sparkes, in the Ghost Formula at FACT and also the mysterious Williamsons tunnels in Liverpool investigating

different ways of ‘making’ a ghost using a neuroscience experiment and also creating portals that suggest spooky action at a distance and which also reference black holes, and the science fiction notion that these may be able to be used one day for interstellar travel. One theory that connects to this ‘spooky action’ is that ghosts could be a quantum ‘leakage’ from other universes. Using different means, Sarah Sparkes is collecting ghost stories from both Liverpool and Taiwan for her online project The Ghost Portal. She works closely with anomalistic psychologist Professor Chris French and others who study ostensibly paranormal activity. She has never ‘seen’ a ghost and agrees with French when he says “A fairly substantial minority of the population claim that they have personally experienced a ghost. For me, this can only mean one of two things. If ghosts really do exist, this has profound implications for our scientific understanding of our place in the universe and for the nature of consciousness. On the other hand, if, as I suspect, ghosts do not really exist, this can potentially tell us a lot about human psychology.” In Taiwan she has set up a ‘ghost exchange’ of money and paper objects given to appease ghosts during Taiwan’s ‘ghost month’.

Artist Nick Laessing has spent the last ten years travelling the world tracking down the mythologies of free energy, particularly the notion that one could run a car on water. In ‘Water-Gas Car’, he has actually decided to try and build one, using all the available knowledge from his research. In the first version of No Such Thing As Gravity, he drove his car, a stripped-out Volkswagen, to the gallery, using hydrolysed water for part of the time. He neither accepts, or rejects the idea that the car might work. Some of the technology that drives the car was exhibited in Taiwan.

Heirloom (2016) by Gina Czarnecki and John Hunt (UK) tested the limits of medical science and the possibility of using cell growth to recapture eternal youth. Looking at the potential impact of innovation on personal identity, and being able to ‘make’ ourselves, artist Czarnecki and scientist Hunt have created a living process of growth tissue, where delicate skin cells frame portraits of Czarnecki’s daughters. It imagines and offers a cultural laboratory for the future of the face. Seeing her daughters faces *in vitro* we enter the ‘uncanny valley’ described by anthropologists to describe the experience between the real and the nearly-real.

The End is a Distant Memory (2016) by Helen Pynor explored the ambiguous borders between life and death at cellular and experiential levels. Working as artist in residence at the Max Planck Institute of Molecular Cell Biology and Genetics in Dresden during 2015, Pynor has studied ‘marginal’ cells that remain alive inside dead tissue, considering the implications of a breakdown between living ‘subject’ and dead ‘object’, and investigated the experiences of people who have survived clinical death. In a chilling video we see a dead chicken drop to the ground in slow motion and a near-death survivor being manipulated by actors in a re-creation of the operating theatre.

Finally, Mexican artist Tania Candiani created a new work for Taiwan, ‘Vimana’ also based on a ‘spooky action’ form of flight, based on the historical transfer of technologies between India and the Chinese region. It uses Taiwanese traditional flying technology to create an Indian mythological phenomena of impossible flight. The *Vaimānika Śāstra* or “science of aeronautics”, sometimes also rendered *Vimanika*, *Vymanika*, *Vyamanika*)

is an early 20th-century text on aerospace technology that, controversially made the claim that the *vimānas* mentioned in ancient Sanskrit epics were actually advanced aerodynamic flying vehicles. In the Hindu tradition, flying vimanas have appeared in representations of different gods, on thrones, palaces and flying carriages. The 'Vaimanika Sastra', written in the early 20th century by an engineer in Bangalore is an entire treatise on aeronautics, which, however unfeasible, which have inspired Candiani to try and create what was in the writer's imagination.

The project was first time as an experimental construction with Indian students during a collateral exhibition at the Kochi Biennale, India, a city with many links to ancient China, built in bamboo and coconut rope, it was raised in the middle of the exhibition space as a flying chapel. In No Such Thing As Gravity in Taiwan, Candiani explored ancient technologies of construction, addressing non-scientific approaches to defeat gravity, using ancient and local technologies for construction (kite and flying lantern construction techniques), working with Taiwanese artisans, to make real artistically the fantasy of vedic flight.

Now, in a world about to undergo changes wrought by the second quantum revolution and the possibilities of non-locality becoming real, (Taiwan is at the forefront of quantum computing), we should recall Bruno Latour, sociologist and philosopher, author of 'We Have Never Been Modern' when he said: 'The world is not a solid continent of facts sprinkled by a few lakes of uncertainties, but a vast ocean of uncertainties speckled by a few islands of calibrated and stabilized forms.' What all these works have in common is that contrary to our expectations,

science is a continuing quest for knowledge and that there are many unanswered mysteries to be resolved.

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