

The Arts Catalyst / Tate Britain

Eye of the Storm

ABSTRACTS

Keynote:

Sheila Jasanoff

Post-Sovereign Science and Contested Nature

Science is not the only, nor even the primary, medium through which we humans experience the natural world. We need no warrant other than our senses and memories, supplemented by such commonplace devices as the calendar and the gardeners' almanac, to register the vagaries of the weather, the changing of the seasons, the fertility of the soil, the migration of birds, or the predation of insects. Increasingly, however, our conception of 'nature' has expanded to include ideas and entities that are accessible only with the aid of science. A scientifically untrained eye, for example, might learn to recognise the terrible wasting symptoms of cancer, but inspection alone could never show us a disease called 'environmental cancer' or a condition known as 'multiple chemical sensitivity.' Nature today is replete with invisible, elusive, fearful, yet wholly 'real' entities revealed to us by science: acid rain, water pollution, ozone depletion, pesticide tolerance, climate change, carrying capacity, overpopulation, or species loss. Curiously, despite the alleged universality of science, these scientific constructions of nature are among the most frequent focal points for contemporary social controversies. Why these most 'scientific' aspects of nature (things known and knowable only with the aid of science) should also be the most contested is one part of the problem I would like to consider. In reflecting on this question, I will also look at the ways in which artistic representations of nature complement, complicate, and render more or less controversial the natural objects made known by science.

Session 1: Trust in Numbers

Richard Hamblyn and Martin John Callanan

Data Soliloquies: Graphical Communication in Science

This paper considers the use (and abuse) of graphs and other forms of visual advocacy in public science forums, with particular emphasis on their application to climate change debates. Graphics are often treated as though they were found objects rather than elaborate constructions containing high levels of statistical uncertainty. The controversy over Michael Mann's 'hockey stick' graph in 1998, for example, turned on its dependence on assumptions that were not permissible (though the ensuing NRC inquiry concluded that any statistical shortcomings in Mann's analysis were too minor to have influenced his overall findings.) Yet there have been more serious cases of graphic irregularity, such as when the Goddard Institute for Space Studies changed the layout of its website in 2005, redrawing its historical climate graphs, with disturbing

consequences. Our paper will explore these and other episodes, such as NASA's 'hyped Venus' controversy, with its notorious 22-fold exaggeration of visual scale. The presentation, moreover, will be two-fold. The paper itself will be presented in tandem with a showing of some of Martin John Callanan's Text Trends animations, which offer a visual critique of the kind of statistically compromised wallpaper that surrounds so much public science debate

Stephen Healy

Scientific Controversy – Differences of 'Fact' or Contending 'Forms of Life'?

Scientific controversy involves contestation between rival claimants over the right to claim truth to nature. These claims are, however, undermined by the value-laden character of controversy. Controversy occurs because of either a lack of conclusive empirical evidence and/or robust, relevant conceptual understandings. The resultant uncertainty is resolved through the exercise of interpretation and judgment in which the broader values of rival disputants comes into play. Art, as the domain of meaning, is particularly well qualified to operate in such spaces. Greenpeace, for example, have used this insight to good effect in many large-scale stunts over the years. Yet, facts still generally 'rule' in our culture and such initiatives commonly, as a result, take a representationalist form in which art is used to signal the factual claims of one side or other. This betrays art's innovative potential to transcend the constraints of scientific reductionism by illuminating how things might be constructively resolved otherwise. This paper will argue that scientific controversy is best conceived as a matter of differences over 'forms of life' rather than fact, with 'forms of life' denoting the way modern living is comprised of complex interdependencies between the technoscientific achievements resulting from factual claims, and broader culture. Debates surrounding the emissions constrained 'forms of life' demand by a substantive response to climate change will be used to illustrate this argument, and how this approach is better placed to tap into art's innovative potential.

Tommaso Venturini

Crash! A Short Introduction to Controversies Mapping

The cartography of controversies is a set of techniques to observe and describe social debates especially, but not exclusively, around technoscientific issues. It was introduced by Bruno Latour as a didactic version of Actor-Network Theory and is currently taught in several universities in Europe and US. Recently, controversy mapping has also become the object of an EU funded consortium (www.macospol.eu) gathering eight European research centres. Thanks to the contributions of the scholars involved in the project, the cartography of controversies has grown to be a full research method. In our presentation, we would like to introduce the work currently in progress in this area. Using examples drawn from the work of students and researchers, we will present the main notions and techniques of controversy mapping. We will focus in particular on the role that digital tools can play in facilitating the exploration and representation of controversial issues.

Please visit <http://unesco.sciences-po.fr/com/controverses/> for examples of didactic projects and <http://www.demoscience.org/> for an overview of online resources for the controversies mapping.

Artists Presentation

Newton and Helen Meyer Harrison

The Force Majeure

Three works will form the subject matter of this talk piece. They are about three different geographies at three different scales; the Tibetan Plateau; the European Peninsula: and the Sacramento/San Joaquin Drainbasin. Basically, these works are sketches that were generated over the last several months. We developed the term 'the Force Majeure' to express the accelerating transaction between aspects of the Global Warming phenomenon and their interaction with the many ecosystems that are under stress or in actual turbulence from over-demand by human activity. The Force Majeure series begins to look at the reduction of production and consumption due to market contraction and the turbulence that mirrors this in the rapidly shrinking productivity and loss of wellbeing of the world ocean and many other overstressed planetary sub-systems. In two of these works, we examine the effect of the reduction of glaciers in the high grounds. In the third and smallest, we look at the major drain basin in California, the place that we come from. As usual in prophetic works like this, unintended ironies surface. For instance, it turns out that the governments of the 3 Force Majeure geographies are almost totally unable to deal with the global warming as presently manifesting and developing, from both a legal perspective, a land-division and land-use perspective as well as in the economic beliefs that drive production and consumption. Therefore, it appears that a most profound re-invention needed for survival and wellbeing in a global warming future would have to be, in fact, the re-invention of governance itself.

Session 2: Testing to Destruction

Rod Dickinson

Statistics, Experience and The Milgram Re-enactment

In this presentation, visual artist Rod Dickinson will look at the way in which he has used performance and time based media to re-examine Dr Stanley Milgram's infamous 1961 social psychology experiment 'Obedience to Authority', where participants were asked to give apparently lethal electric shocks to an unwilling victim to test how far they would be prepared to obey an authoritative scientist and inflict pain on a protesting person. Using visual material from this and other pieces of work he will reflect on the role that art might have in reassessing and rethinking the mediation of complex events, highlighting some of the differences in the way that Milgram's experiment has been represented.

Michael Bravo

How Experiments are Remembered

This paper is about how experiments are remembered over the passage of time. Sometimes we imagine that truth is found closest to the time and place of an experiment, but this is not necessarily the case. Where medical experiments involve human subjects, the changing relationship between truth and memory can be complex and last a lifetime, or longer. By considering how human experiments are experienced and remembered by those involved directly and indirectly, I am examining how they figure in peoples' self-understandings. The changing biographies (and epistemic commitments) of the participants continue to create new important experimental meanings. Reflexivity is an important ethical consideration in the context of experiments with human subjects. This conversation in Eye of the Storm may also play a significant role in how particular experiments are remembered. With that in mind, organisers and participants are requested not to make any audio or video recordings.

Session 3: The Genetic Paradigm

Eduardo Kac

Telepresence and Bio Art

Eduardo Kac is an internationally recognized artist who gained prominence at the beginning of the twenty-first century with his transgenic work GFP Bunny (2000), centred on the green-glowing bunny named Alba that he created through genetic engineering. His presentation will offer an overview of his trajectory, with emphasis on his most recent works. Among his many career highlights, Kac will discuss his transgenic artwork *Natural History of the Enigma*, currently on view at the Weisman Art Museum, in Minneapolis. The central work in the *Natural History of the Enigma* series is a plantimal, a new life form Kac created and that he calls 'Edunia', a genetically-engineered flower that is a hybrid of the artist and *Petunia*. The *Edunia* expresses Kac's DNA, taken from his blood, exclusively in the flower's red veins. Following the lecture, the artist will sign copies of his books *Telepresence and Bio Art -- Networking Humans, Rabbits and Robots*, published by The University of Michigan Press, and *Signs of Life: Bio Art and Beyond*, published by The MIT Press.

Sylvia Nagl

Our Virtual Genome

A revolution has taken place since the start of the new century, still largely unreported by the media. The era of the gene - as we have known it - has ended. A radical re-definition of the genetic paradigm is required which transcends the nature-nurture debate with profound repercussions across academic disciplines and society.

DNA may be called a virtual genome, as it does not directly specify 'the' body, only possible bodies. We now understand that the complexity of the human body in all its diversity may not primarily depend on its repertoire of 'genes', commonly understood as fully specified DNA-encoded information for protein synthesis. A much larger set of design instructions is computed in real time by an RNA-based information network in response to environmental, developmental, nutritional, social and other signals.

In the light of climate change and global urbanisation, the concept of virtuality – understood as the ability to adapt, the power to become, the capacity to change – assumes a new and urgent significance. The talk will present multiple readings of the significance of this radically changed view of the human genome for diverse domains of culture, including medicine, neuroscience, art and design of the built environment.

Trish Adams

Pluripotent Stem Cells: an Artist Grows Her Own...

When considering the relationship between scientific uncertainty and public controversies around science there are few more evocative contemporary subjects than stem cell research. Entering into a biomedical science laboratory, the artist sought to undertake first-person biomedical research by using her own adult stem cells as the source material for her experiments. This immersive strategy not only contravened the accepted norms of so called objective research practice, it also featured the artist as 'human guinea pig'. Within the matrices of this innovative, collaborative art/science research model a hybrid amalgamation of research practice and research subject occurred.

The risks and ethics, potentials and pragmatics, of a visual artist engaging with contemporary stem cell biomedical research - both practically and theoretically - are outlined and discussed. Informed by the discourses surrounding ethics, genetic manipulation and living systems, the artist recontextualises the scientific data in the

milieu of bioart and re-privileges the aesthetic experience of corporeality. Particular emphasis is placed on the conceptual rationale underpinning the speculative framework of the project, the artist's methodologies and the hybrid amalgamation of research practice and research subject that evolves. Thus, the concerns and protocols of the disparate disciplines interrogate contemporary socio-cultural concerns and their implications on constructs of 'humanness' in the twenty-first century.

Session 4: An Unsteady Universe

Roger Malina

Dark Energy and the Ethics of Curiosity

Modern astronomy is confronted with a major mystery. As we understand it today, most (95%) of the content of the universe is in a form that is 'dark': it emits no form of light or electromagnetic radiation. We deduce the existence of dark matter from its gravitational effects, binding together galaxies that would otherwise not be stable. We deduce the existence of dark energy from the interpretation that the expansion of the universe is accelerating: there must be some energy or force that is driving the expansion. For all of human history astronomers have been studying the 'decoration' in the universe (ironically the word kosmos, root of cosmetics, had the sense of 'ornamentation'). I want to examine scientific curiosity and its ethical and cultural history to ask the question: when is scientific curiosity satisfied? When does a scientist stop looking?

Harry Collins

Getting into Gravitational Waves: 'Elective Modernism' and the Two Cultures.

I am a sociologist of scientific knowledge who has spent nearly 40 years studying the science of gravitational wave detection. I will describe the highlights and main outcomes of this study. The findings seem to show there is nothing special about science. Having been deeply immersed in both of the two cultures will argue that, nevertheless, it is vital to preserve a central role for scientific values in society: we need an 'elective modernism.' I will try to explain what this would look like in the face of what we have learned about science in the second half of the twentieth century.

Session 5: Species and Power

Meredith Tromble

Models or Agents? Animals, Women, and the Culture of Science

This talk focuses on in biological practice as addressed by artists such as Kathy High, Nina Katchadourian, Rachel Mayeri, and Gail Wight. Along with feminist biologists, these artists ask questions such as: How do cultural patterns connecting 'women' and 'nature' affect interspecies relationships in the lab? Is it possible to imagine a biology conducted with respect for the lives of other species? What does it mean to communicate with other species and how might that influence the practice of biology? Women – who, like animals, have often been construed as 'other' in male-centred narratives of 'nature' – have been particularly well-placed to notice the ways in which those narratives sustain oppressive power relations both inside and outside the laboratory. As women entered official biology in larger numbers, some of them began to ask if the standard attitudes towards animal life expressed in scientific culture related to gender issues. Biologists considering their own practice, such as Lynda Birke and Ruth Hubbard, who first raised questions about how the absence of women scientists may have shaped biology, then

turned their attention to consider the alternative frameworks for the study of life, asking what one might expect to see if biology were regarded as a partnership between humans and other life forms. Artists have also asked this question, illuminating the complications of interspecies relationships in research by exploring the historical foundations of contemporary attitudes, critiquing standard practice, and deploying techniques such as contemplation, role-reversal, and satire.

Revital Cohen

Natural Kingdoms and the Postbiological World

Advancements in biotechnology and medicine allow our bodies to be moulded, manipulated and juxtaposed with other materials. As such, we as humans can take many confusing, questionable roles. While science develops the ability to break the boundaries between natural kingdoms and fuse the organic with the artificial, we are slowly liberating ourselves from the limitations imposed by biology and redefining our anatomy, mind and environment. The possibilities of merging man with machine, with other species, with plants or digital information are as promising as they are uncomfortable, and open up a space for debate.

The Life Support project proposes using animals bred commercially for consumption or entertainment as companions and providers of external organ replacement. Any discomfort this proposition may trigger is used as a catalyst to discuss bioethical issues surrounding transhumanism, the creation of utility transgenic life-forms and the inhumane nature of medical technologies. The work functions as a design provocation; while a safe and utopian approach to science often results in indifference, the controversial and provocative erupts strong feelings. However this is not controversy for shock value, but a result of the suspension of disbelief triggered by a subtle balance between fact and fiction.

Oron Catts

The Salamander and the Slime Mould - Mixing the Regenerative Bodies

This talk will cover both metaphorical and actual use of animals or their parts in biomedical research and practice. I will focus on so called regenerative medicine and tissue culture, to show that mixing of bodies is not so new, and that the metaphors used are often inappropriate. The talk will use some of the Tissue Culture & Art Project works as case studies to highlight some contentious points.

Oron Catt's contribution to this conference is supported by the West Australian Department of Culture and the Arts.

Adam Zaretsky

Does Cloned Animal Safety Take into Account the Effect of Aesthetics on the Long-term Ecological effects of Food Chain Design?

Right now, the only type of 'taste' we can see embedded in cloned livestock is based on ramping up meat production and maybe designing and cloning industrial beings born with zero percent transfat.

Considering the range of gene expressions possible in a collage of multiple genomic palettes, economic efficiency is neither a simple concept nor our only deciding force. We need to explore the entire range of clonables and widen the variety pool to include gourmet, abject and non-utilitarian breeding projects. Practitioners or Historians of Futurism, Surrealism, Abstraction, Minimalism and other Contemporary art movements may all have their own special cow, pig or chicken clone advisory role to play. Consider what a gifted cubist could bring to the table.

What are the cultural aesthetics of our ecological future?

The industry animals may be foreign species brought forth from technological sites but are they beautiful enough for us to want to live with them for generations to come. Sometimes real-time back fat is not enough. There is an economy of aesthetics, which will drive the ecological affect of our engineered future.

What can an understanding of the arts bring to livestock design?

The arts represent a great asset for livestock design and a great way to insure that the future isn't born looking dull, retrograde and a bit too sketchy. The admixture of global variety through genetic engineering and the cloning of spectacular hereditary cascades should only be approved through an aesthetic advisory commission made up of artists, art historians and aesthetics specialists. The future of style and the avoidance of our populous eating any aesthetic hazards depend on collaboration between new reproductive biotechnology and the Arts.

Session 6: Decoding the Body

Bronwyn Parry and Ania Dabrowska

Mind over Matter: Rehabilitating Bodily Donation in the Wake of 'Alder Hey'

In 2000 a huge public scandal erupted when news broke that several thousand body parts and organs taken from dead children at England's Alder Hey and Bristol Hospitals were being archived without parental consent for unspecified research purposes. The subsequent revision of the Human Tissue Act, while creating strict, some would argue overly repressive regimes of regulation for the collection and use of bodily tissue did little to assuage the concerns of prospective adult donors who remain susceptible to malign Burke and Hare like visions of 'body snatching'. The donation rate for bodily tissues for research has fallen dramatically as a consequence.

In this paper cultural geographer Bronwyn Parry and artist Ania Dabrowska employ new photographic, archival and interview material from their project Mind over Matter to demonstrate the key role that a unique constituency of individuals – prospective brain donors aged now over 85 years – are set to make to the technoscientific project of finding cures for Alzheimer's and Parkinson's. Focusing on the impact that policy decisions have had on demonising scientific research on retained body parts we here set about demonstrating how the extraordinary selflessness of these previously anonymised donors may contribute to the rehabilitation of this crucially important practice.

Mind Over Matter project will result in an exhibition and a book consisting of photographic portraits of the donors, audio recordings of their personal philosophies on life, transience of the body, ageing, autonomy, the legacy of gifting, the brave new world of biological re-modelling, archival photographs from the donors' family albums, and photographs revealing the lives of the donated brains after death of their donors.

Janet Smith, Lindsay Faulkner, Kira O'Reilly

[Scientific] Objectivity: Can Convergences And Divergences Of Ideas Between The 'Artist' And 'Scientist' Point Of View Engender A Truth That Is 'More Real'?

This presentation will explore work arising from (interdisciplinary) investigations into tissue culture, tissue engineering and stem cell manipulations undertaken jointly by scientist Janet Smith and artist Kira O'Reilly; the aim being to 'create' three dimensional living architectures using bone, muscle, nerve and spider-silk. These structures have immense potential value as 'in vitro' biological models for the purpose of scientific enquiry and medical application. However the essence of this project is the exploration of the complex ethical pathway that must be taken in order to achieve the goals we have

set for ourselves. The project is essentially a 'hybrid practice' which makes use of a wide range of methodologies more commonly associated with 'arts' as well as 'science' disciplines. Both 'artist' and 'scientist' are fully engaged in all aspects of this process and often have interchangeable, or changeable roles. The project uses a number of different and controversial technologies asking the question:

(How) can science generate an objective truth when it is interpreted by ourselves? Can convergences and divergences of ideas between the 'artist' and 'scientist' point of view engender a truth that is 'more real'?

Norman Cherry

Grow Your Own – Angiogenetic Body Adornment

This presentation examines aspects of body adornment which for some time have been of interest to, and influential on, the visual arts community. Tattooing, piercing, scarification, contemporary refinements in cosmetic surgery, competitive bodybuilding, implants, the recent history of organ transplants, and tissue engineering technology are all woven together to predict a future in which biomedicine may provide a realistic opportunity for permanent body modification via deliberate and planned growth of one's own tissue.

Norman Cherry believes that in the relatively near future tissue engineering will become a more or less mainstream medical process. Consequently it is likely to grow into a commercial and creative opportunity to have implants which will, over a period of several months or years, grow as subcutaneous cartilage or bone to form new, living body adornment.

The performance practises of Orlan, The Lizard Man, and some of the extreme activities of the Body Modification subculture, indicate the potential. Indeed, the performance artist Stelarc has already begun a process which illustrates that what might have seemed Science Fiction will in fact become Science and Art Reality.

Besides postulating likely forms of Angiogenetic Body Adornment, this presentation hopes to inform the ethical debate surrounding the subject.

Session 7: The Geopolitics of Science

Alana Jelinek

BLACCXN science

This is an artwork; it is not a talk about art, but a performance piece in its own right. As part of an ongoing critique of neo-liberalism, I will draw on my avatar, the character of BLACCXN PR guru, to describe the many ways to exploit commercially a general lack of understanding of scientific principles. The 15 minute PowerPoint presentation will celebrate credulity and disinformation in the name of profit. I will ask audiences to brainstorm new angles in profitability for BLACCXN using as inspiration the more creative interpretations of Evolutionary Theory. The presentation will demonstrate the various ways in which to exploit a populace who lack the tools to discern truth from fiction. This presentation is about aiming high – moving away from the simple potential for exploiting the undereducated. For real profitability we must look to the more academic misinterpretations of postmodernism which help keep a generation of graduates believing that everything is probable. After all, the undeniable truth lies in the bottom line – there's no arguing with that.

Steven Rose

How the State Intends to Read our Thoughts and Control our Behaviour.

The relationship between the military, science and technology has probably persisted through human history. But recent developments and prospects in the life sciences, and neuroscience in particular, are proving of particular concern in a society obsessed with surveillance and control. Biomanipulation and drugs to improve the fitness of 'war fighters,' brain imaging to predict behaviour, new drugs to control and manipulate behaviour of friends and foe, transcranial brain stimulation to alter thought and emotion, are not only the stuff of science fiction, but also the current research of military and intelligence agencies. Whether realistic or snake oil, such technologies represent clear and present dangers to human rights and liberties.

Paul Dorfman

Russian Dolls, Chinese Whispers and Nuclear Song-Lines

Nuclear risk dramas are performed upon darkly lit stages. Despite the key nature of the debate, the definition of radiation risk remains controversial and open to critical analysis. This is because there are a number of key uncertainties in the risk estimates for both radiation biology and radiation epidemiology. Thus, low energy beta particles, Auger electrons, and alpha particles pose particular challenges, as does genomic instability and bystander effect. Moreover, recent epidemiological studies by the German Childhood Cancer Registry carried out on behalf of the Federal Office for Radiation Protection point to further real uncertainties in current risk estimates. Paradoxically, the nearer to fundamental science, the greater the uncertainty - yet the nearer to regulation the greater the certainty. So somewhere along the continuum that stretches from inside the laboratory to the world outside, 'uncertainty' has been translated into 'certainty'. In other words, rather like the 'song-lines' of the Australian Aborigines nuclear regulation seems almost 'sung into being'. The question remains: is current nuclear regulation a faltering 'Chinese whisper' where information is corrupted in transition, or a 'Russian doll', where layers of information, calculation, theoretical extrapolation and model-building are snugly ordered?

Helen Evans

Incineration – Smoke without Fire, Fire without Smoke

The image of a factory chimney with its plumes of smoke is always changing its meaning, it was once used as a signifier of wealth and prosperity, today, it most often functions as the ultimate icon of pollution. I will discuss the latest developments in the project Nuage Vert (Green Cloud), which plays with the aesthetics of power plant emissions as a direct way to trigger a passionate debate.

The presence of a waste incinerator close to a future residential zone has provoked fear and controversy in Saint-Ouen, a town on the periphery of Paris: the health risks posed by the emissions are difficult to measure and impossible to assess in the short term. Public discussion has focused almost exclusively on the effects of incineration rather than the causes. At the same time, the waste authorities' newest incinerator has no visible emission - using more energy to burn household waste at a higher temperature so that the cloud forms higher in the sky once the gas has left the chimney. What does it mean if the evidence of waste incineration disappears?

Our project is to colour the emission of the Saint-Ouen incinerator in green, drawing its contour with a moving laser beam to reflect local consumption. The size of the green cloud changes according to the weight of the local waste that is collected. To make this happen, we need to work in partnership, which means building relationships between artists, citizens, waste industry and decision makers.

However, in the last year this project has met with deep-rooted resistance from the local authorities, who consider the colouring of the cloud 'worrying', 'risky' and 'disruptive'.

What does it mean when art sparks more controversy than the issue it attempts to represent?