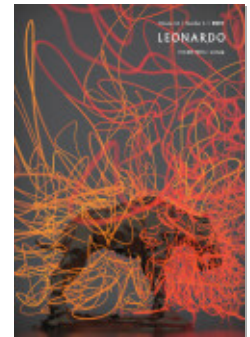# Science Meets Art at Bundanon

Nigel Helyer, John Potts, Katie Dyer, Lizzie Muller, Tania Leimbach, Keith Armstrong, Andrew Grodecki

Abstracts from the Spectra 2018 Symposium Part 6
Systems

TOPIC: SYSTEMS

SCIENCE MEETS ART AT BUNDANON

Nigel Helyer and John Potts

In our paper, we describe the findings of the research project "When Science Meets Art: An Environmental Portrait of the Shoalhaven River Valley." This three-year project, supported by an Australia Council Synapse grant and an ARC Linkage Grant, took an interdisciplinary approach in constructing an environmental portrait of the Bundanon region in rural New South Wales. Bundanon is a vast property of 1,100 hectares in the Shoalhaven River Valley; it is the former home of artist Arthur Boyd, and today it is the site of an artists' retreat and education center. Techniques of environmental science were combined with cultural history, interactive technology and contemporary art in the research project.

"When Science Meets Art" produced a website titled *Culturescape: An Environmental Portrait of Bundanon.* This online portrait comprises an interactive environmental map, an environmental history of the region, representation of a number of walks across the site and the documentation of five environmental artworks by Nigel Helyer, all initially installed at Bundanon. The interactive map displays environmental data of soil quality at Bundanon in sonified and visualized form. The map presents the forensic analysis of minerals in the Shoalhaven catchment as a means to understand human occupation and modification of the landscape. It analyzes soil across the site to assess the land at Bundanon for "footprints" of former human activities. The user hears a sonification of the environmental data, represented as a musical piece, and sees a visualization of the mineral data as a graphic display.

We document the five artworks completed as part of the research project and describe the interactive map and website. The findings of the research project contribute to an environmental portrait of Bundanon drawing on the methods of both science and art.

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TOPIC: SYSTEMS

**CURATING ENTANGLEMENT:
SCAFFOLDING AUDIENCE ENGAGEMENT
IN ART-SCIENCE EXHIBITIONS**

Katie Dyer and Lizzie Muller

In this paper we examine experimental curatorial and inter-pretive strategies used to engage audiences in art-science exhibitions. We focus on two recent art-science exhibitions concerned with human futures and the impact of techno-logical change: *Human+ The Future of Our Species*, a touring exhibition generated by the Science Gallery, Dublin, and then developed by the Centre for Contemporary Culture, Barce-lona, and the ArtScience Museum, Singapore (2011–2017); and our own exhibition *Human non Human*, on view at the Museum of Applied Arts and Sciences, Sydney (2018–2019).

We describe how a relatively new psychosocial method for audience evaluation called the Visual Matrix has helped us to generate insights into the audience experience of these exhibitions through a process of collective free association and how this method can inform the curatorial process.

Human+ and *Human non Human* aimed to engage audi-ences in the complex and rapidly changing discourse of the "posthuman." We examine the role of spectacle, provocation, immersion and world-building in these exhibitions. Against this backdrop we focus on our own iterative approach to curating using the Visual Matrix as a formative tool. We show how we responded to a range of audience experiences of *Human+* captured by the Visual Matrix in our curatorial approach to *Human non Human*.

In particular we discuss our attempt to scaffold the audi-ence's experience of *Human non Human* with an experimen-tal piece of museum interpretation called the "Entanglement Interactive." This interactive combination of text, images, videos and audio—available in the exhibition space and online—not only maps the interplay of ideas and objects in the exhibition but also emulates the collective associative work that audiences do in exhibitions, which is revealed in the Visual Matrix. The Entanglement Interactive included user analytics that allowed us to track the pathways audiences created between the resources it presented. In this way both the Visual Matrix and the Entanglement Interactive offer tools to capture the connections and associations audiences make between objects and ideas and so give insights into the processes by which collective experience is formed and new knowledge created in exhibitions.

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TOPIC: SYSTEMS

AERIAL PITFALLS: HARNESSING THE POWER OF THE "GOOD" DRONE

Tania Leimbach and Keith Armstrong

Media artist Keith Armstrong's collaborative practice has long involved intensive periods of collaboration with biological scientists and social scientists, developing art-science, creative incubators around periods of ecological fieldwork. Artist Jill Scott views such field trips as unique sociocultural events that manifest tacit knowledge and social interactions in a given spatial environment where explicit knowledge is prioritized.

During Armstrong's participation in art-science research in regional Australia (as ANAT Synapse's 2012–2013 resident at the Australian Wildlife Conservancy), he sought to understand practices of reintroduction and conservation biology that aim to recreate or renew historically degraded ecological systems. He asked: How might we improve understandings of these composite ecologies that mesh cultural, biophysical and synthetic elements, leading to improved understanding of the cultural confines of traditional scientific thinking, to foreground better policies for maintaining biophysical complexity and diversity? His fieldwork built through experimenting with a range of analog and digital surveying technologies used to extend scientific knowledge around nocturnal creatures—technologies that collectively form a part of how we envisage "new natures." While working with the ecological scientists during pitfall-trap survey events to survey small mammals and invertebrates, he asked them to consider the broader cultural dimensions of a "pitfall"—an unapparent source of trouble or danger; a hidden hazard. He later turned these findings into a series of high-profile public artworks (see Fig. 1 in online supplemental materials).

Since that time, the potential of aerial robots (drones) has become better understood by filmmakers, scientists and others as experimental tools within creative transdisciplinary practices. While the drone's pervasive, elevated, mobile presence has long spoken to the totalitarian control idealized by the military industrial media complex, its capabilities for flying a range of sensors beyond the ubiquitous camera continues to develop and expand in disciplines of conservation science, AgroSciences, antipoaching and other animal and biota security contexts. As artists, scientists and other disciplinary experts continue to seize opportunities to advance social and environmental change through collaborative, speculative projects, the question of how "we" might better use these aerial robots therefore becomes a key cultural challenge. This engagement also promises to play increasingly critical roles in redesigning social relations to natural systems, ultimately seeking to shift cultural conditions within the Anthropocene (see Fig. 2 in online supplemental materials).

Armstrong's new art-science collaboration *Uncanny Valleys*, conceived with field-based conservation scientists, focuses upon creative, unexpected uses of existing drone-based tools in ways that switch focus back onto the "nature" of ecological problems themselves (see Fig. 3 in online supplemental materials).

His aim—to conjoin immense, seemingly incomprehensible strange landscapes via VR imagery originally generated by drones—speaks to Timothy Morton's concept of "hyperobjects": "things" like landscapes of vast scale that are far beyond normal human comprehension. Morton suggests that if we wish to become sustainable humans, we must work to transform how we see and experience our world in order to rewire our "ecological awareness." Sympathetically, *Uncanny Valleys* seeks to create unexpected, strange encounters, both within the artwork and via its originating landscapes, as a tactic for decentering and expanding our ecological perception.

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TOPIC: SYSTEMS

THE ARTIST IN RESIDENCE SCIENCE PROGRAM: A CATALYST FOR CONSILIENCE

Andrew Grodecki

There are hundreds of artist-in-residence opportunities available at any given time worldwide. Their residency models range from short intensive visits to extended embedded or intermittent residencies. Some are in contexts highly structured by a sponsoring organization, while others simply provide access to a special location or a residence. Some residencies remunerate the artist, some provide accommodation and others offer in-kind support, while many residencies ask the artist to in some way fund their residency. The relatively few art-science residencies offered around the world can be sorted across these various residency models.

The Science and Technology Division of the Queensland Department of Environment and Science, Australia, employs about 400 research staff who are focused upon empirical research—what can be measured, observed and repeated. In 2012, the department began hosting an annual *Art Meets Science Exhibition* around National Science Week. Curated by me, the exhibition was warmly welcomed by many and strongly castigated by some in its first years, with questions and statements from a few that indicated that, to them, art represents the antithesis of their scientific worldview. Many welcome the new ideas the exhibited artworks engendered and the creative reimaginings of their area of study. After three such annual exhibitions, growing support for the concept enabled the commencement of the first formal Queensland Government Artist in Residence Science Program (AIRS).

The AIRS program explicitly recognizes the conciliant value of art-science collaborative residencies and was expressly instigated "to promote the role and value of arts and science as key drivers of discovery and growth in Queensland; to grow our creative intelligence; and to play a catalytic role in helping solve some of the biggest environmental challenges facing our state" [1].

The program supports creative collaborative residencies through engagement of professional artists with the wealth of diverse science networks, researchers, fieldwork, data and infrastructure in the Science Division. There have been four AIRS programs since 2015, involving 23 artists and a similar number of scientific staff across the Science Division at three Brisbane, Queensland locations: the Ecosciences Precinct, Dutton Park; the Queensland Herbarium, Mt-Cooth-Tha; and the Queensland Government Hydraulics Laboratory, Deagon.

An assessment panel of leading representatives from Queensland science and arts organizations and bodies and the creative community assessed applications from eligible professional artists against four criteria: quality (project creativity, innovation and expertise); value (proposed scientific, artistic and community outreach and ability to increase capacity across sectors—creatively, collaboratively and encouraging new partnerships); reach (how they will work and engage during the residency and engagement experience); and viability (planning, timeline and effective use of resources, etc.). The paper uses case studies of individual AIRS residencies to examine the nature of their collaboration in this institution-based art-science residency program. The artists of these AIRS residencies are Jane James; Louise Saunders; Donna Davis; Tessie Liddell; Jen Seevinck; the Bloom Collective comprising Renata Buziak, Vicki Kelleher and Jan Baker-Finch; Vanessa Tomlinson; and Erik Griswold.

Reference

1 Queensland Government, "Artist in Residence Science (AIRS) 2017–2018—Guidelines," Science Division, Science Capability, Engagement and Collaboration, Science Division, Department of Science, Information Technology and Innovation, Queensland Government (2017) p. 1.

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