

Scale Free Network: The Secrets of the Infinitesimal

Introduction

Scale Free Network are a contemporary art collective based in Melbourne, Australia. Drawing on the expertise of their three members - Briony Barr (artist); Jacqueline Smith (artist and art teacher) and Gregory Crocetti (microbiologist), their practice explores the intersections of science, art and instruction. Proceeding from an awareness of key trends towards interdisciplinarity and collaboration in contemporary art, in Scale Free Network's practice, the creativity of the artist meets the rigour of the scientist. The territory in which they meet is the unfolding ground of becoming that characterises the natural world; the complex systems, structures and patterns that govern the emergence of all living organisms, from a tiny protozoa to the branching of a coral reef. And, since their formation in 2007, Scale Free Network have expressed this fascination through inquiry into the microscopic world, which they interrogate in installations, performances, talks and participatory workshops.

Microscopy and the disclosure of 'infinite wonders'

The infinite hidden worlds of microscopic organisms and structures were first revealed to the public in the late seventeenth century, with the emergence of the device known as the microscope. Primary among the "artificial organs" that revolutionised how humans conceptualise their existence, the microscope disclosed a wider, more complex and fluid informational world than had been previously been conceivable.¹ After the first generation of inventors developed and refined the technology of the magnifying eyeglass, in 1665 the English scientist Robert Hooke published his landmark study, *Micrographia: or, Some Physiological Descriptions of Minute Bodies Made by Magnifying Glasses*. Presented in this publication were Hooke's startling accounts of hitherto-unseen phenomena: natural objects like snowflakes and leaves, and also man-made matter, including a razor and a cork. *Micrographia* captivated the public imagination, which until then had only myth and conjecture to explain the appearance of objects too small for the unaided human eye to see.

The name of Hooke's study - *Micrographia* - is central to understanding the relations of microscopy and technology in human culture. For not only did Hooke observe, recount and explain his findings of the miraculous miniature worlds under his microscope: he also painstakingly illustrated them. Micro – tiny; Graphia - to draw. As a result of the publication of Hooke's drawings, early audiences were entranced by the never-before seen glimpses of tiny hairs on fleas' bodies, the textured surface of a sewing needle and the pores on a bottle cork, which he decided to call "cells", forever influencing the course of modern science. As Terpak explains,

The illustrations for the *Micrographia* focused unprecedented attention on the infinite wonders of the animal, plant, and mineral kingdoms. In one illustration, five minute seeds of the poppy fill a folio page. They loom with such bulk that they cast shadows and their surfaces exhibit a honeycomb texture indiscernible to the naked human eye. Hooke reproduced his specimens at a greatly enlarged scale but with such veracity that the small

¹ Stafford, p. 1.

beings he depicts garner respect. Spread across an eighteen-inch-long foldout, the common flea becomes a formidable creature with a spiked suit of armor and jointed legs, feelers, and ‘smellers’ ready to spring into action.²

These ‘infinite wonders’ revealed by the microscope are at the centre of Scale Free Network’s creative practice, which references the complex cultural histories embedded in this now-ubiquitous, richly multivalent device. These are histories of human curiosity about the natural world, and the magic of magnification. The microscope is also analogous, as many thinkers have pointed out, for the capacity for humankind to “open its eyes” to material that exceeds our sense organs – the world beyond our immediate perceptual grasp.

In Scale Free Network’s installation at MMCA - *The Elaboratorium*, visitors are brought into a speculative laboratory space, in which scientific devices for the examination of phenomena are arrayed throughout the gallery space. On entering, the spectator encounters a series of projections, some immersive and huge, some constrained and contained within circles. In the form of a shadow, the viewer’s image-as-observer becomes part of the largest projected field, magnified by the projected light as they move closer. On the far wall, the light from a slide-projector blinks periodically, highlighting the dynamic movement of the small spheres caught inside the glass *Particle Chamber*. Circular tables are laid out around the room, offering the viewer tools and samples for further exploration, closer observation on their own terms. Behind the centre wall, the spectator discovers there is a symmetry to the space, repetition in the form of the circular suspended discs that spin of their own accord, refracting strange and nebulous shapes around the room. She hears chamber music playing, a mediative sound, somehow conducive to study...

As Australian artists, SFN operate in a context of a wealthy, modern nation-state that positions itself assertively behind the twin rhetorics of science and technology. While there has certainly been significant investment in certain applications, other avenues have inevitably been overlooked, or even actively suppressed in the pursuit of short-term political and corporate goals (such as investment in clean energy technology). In the international imaginary of “Australia”, however, pioneering technological innovations barely register, such is the power of the imagery of a vast, wild continent populated with a wide array of unique, photogenic and occasionally dangerous fauna. Australian technological advances (as elsewhere) are typically presented with much self-congratulatory fanfare, but paradoxically often parallel distinctly underwhelming environmental conservation efforts, which are more or less invisible. In *The Elaboratorium*, SFN subtly invoke the paradoxes at the heart of contemporary Australia, and foreground this notion of the “invisibility” of the natural world with the incorporation of microscopic images of organisms teeming in Australian rivers, creeks and billabongs which are projected throughout the gallery space.

In their work, Scale Free Network also refer to the key expressive practices that accompanied the emergence of microscopy, cementing its revolution of human consciousness: drawing and explanation. In addition to magnifying and observing miniscule matter, SFN stage the drawing of microscopic entities, inviting audiences to

² Terpak, p. 205.

create for themselves the world in miniature as laid before their eyes. This practice harks directly back to Hooke's meticulous drawings of tiny creatures, and the wonders disclosed by the act of transcribing what is seen into depiction. As curator of experiments, Hooke performed regular public demonstrations for the Royal Society in London, and was acutely aware of the impact and drama of the visual for capturing the public imagination. In *The Elaboratorium*, the visitor is instructed via written instructions, expressed inside petri dishes, which guide exploration of the microscope to investigate the samples provided. In their mobilisation of the instructional modality, Scale Free Network are reflecting both the trend towards the "instructional turn" in contemporary art practice, as well as a deeper awareness of optical devices' historical specificity as agents for the transmission of ideas.

Scale Free Network's agency the activation of the space by the presence of these mediations, acting the hermeneutic role of explainer and enabler – is crucial to their practice of merging the fields of art and science. Why? Because the practice of the illustrated lecture or textbook is just one of the many correlations between art history and scientific history. For both disciplines, the central unit of instruction has been the detailed slide image, accompanied by learned explanation in various forms. The microscope is, in both senses of the word, instrumental here. As Stafford explains,

(u)nderstanding that instruments belong to a broader technological system and are integral to connective theories and practices of visual communication allows us to situate them within a more inclusive endeavor, where art and science do not so much rival each other as intermingle and branch.³

In *The Elaboratorium*, the viewer encounters the slippage between these two worlds, their mingling and branching, brought together in the shared space of the laboratory, the site where experiments are conducted, processes tested out, discoveries made. The spectator's own image dramatises this commingling, as the shadow of their body in the space, picked out by projector beams, acts as a reflection of their own investigative processes within the space of experimental elaboration.

Thinking process

Central to the philosophy underpinning Scale Free Network's practice is the notion of process. While ideas of process have long fascinated thinkers and philosophers, and are at the foundation of modern art's uncoupling of creative practice from the production and trade of the 'precious object,' in the last decade the interest in process has re-emerged in contemporary art discourse with particular vigour. For Fraser, Kember and Lury, process is behind contemporary philosophical attempts to 'bring alive' cultural and natural entities, by, for instance, understanding them as 'information' or 'complexity'. They advocate a consideration of process that displaces the primacy of the subject, allowing the dynamic relationship between elements to come to the fore. By 'thinking process' in terms of a molecular relationality that is prior to the actual material objects and entities that may emerge from it, process as a concept takes on a new and powerful valence. In this consideration, 'objects, subjects, concepts are composed of nothing more or less than relations, reciprocal enfoldings

³ *ibid.*

gathered together in temporary and contingent unities. Furthermore, since a relation cannot exist in isolation, all entities can be understood in relation to one another.’⁴ Scale Free Network’s investigation of the structures of the universe repeatedly returns to the fundamental interconnection across physical scales that describe the relations of living systems, exploring and imaging the iteration from molecules to microbes to humans to entire earth as a living organism.

This idea of all entities being understood in terms of relationality opens out onto the concept of multiplicity that is so central to Scale Free Network’s practice. Understood as a relational process, endeavours such as *The Elaboratorium* are a working out of ideas throughout space, and across time, through the process of multiplication. Relevant here is the concept of morphogenesis, explored by thinkers such as Gilles Deleuze and Manuel DeLanda: the fundamental biological process, synonymous for life itself, by which an organism takes its shape through cellular growth, elaboration and sub-division. For DeLanda, relationality is understood via the processes of multiplicity; it is a notion that allows a conceptual apprehension of being that avoids essentialism and oversimplification. In fact, multiplicity is always already the opposite: it is complexity in motion. Complexity, multiplicity and relationality – a process-based philosophy, to invoke the term of famous early philosopher of science, Albert North Whitehead – means an emphasis not on “being” per se, but on “becoming”. SFN embrace these ephemeral, continuously branching forms, from the microscopic projected video images to Barr’s drawing emergences, in the ‘assemblage’⁵ that is the *Elaboratorium* space.

‘An atmosphere of secrets surrounds intimate technologies designed to be seen by one person at a time – whether microscope [...] or computer monitor.’⁶

In their revelation of the invisible microscopic world and the many of becoming fundamental to life on earth, Scale Free Network set in train a process that goes beyond the installation of *The Elaboratorium*. The spectator enters the space of the artwork, and their presence elaborates the transformations underway. Through the deployment of historically-charged optical instruments such as the microscope, the artists invite the spectator to see what cannot be seen, to give way to wonder - to share in the revelation of secrets. Thus the artist and the spectator take part in and shape the process of discovery, co-evolving in ‘tropistic unity, a coupling of sensation and tropism’, as Gilbert Simondon⁷ puts it. Through this model of complex multiplication, the installation space becomes, like the artists’ collective itself, a kind of organism, a living system that adapts and grows, opening out onto new understandings of the world.

-- Dr Danielle Zuvela
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⁴ Fraser et al. 2005, p. 3.

⁵ DeLanda 2006.

⁶ *ibid.*

⁷ (1992 [1964], p. 309).

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